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C H A P T E R


The Slash Commands

The Slash Commands

Introduction to the Slash (/) Commands




The slash commands are so named because they begin with the slash (/) key. When you type the first letter of a slash command, SuperCalc3's interpretive prompting completes the rest of the word on the entry line. For example, when you enter **/B**, the entry line reads **/Blank**. Notice that the interpretive prompting also includes the comma separating command options. When you enter the **(/)**, the prompt line displays all the possible one letter entries. Whenever you wish further information about your option at any given moment, press the AnswerKey (?) or **[Apple 1]**.



Most commands have several levels of entry. When you choose one of these, the prompt line changes to show the choices available for that particular command. You are prompted through the entire sequence of options.

Commands, like data, can be edited with the in-line editor. Remember that when you press **[Return]**, everything visible on the entry line is entered—not just the part of the command to the left of the cursor.

This chapter describes each slash command. The commands are presented in alphabetical order, just as on the prompt line. The *SuperCalc3 Slash Command Map* on the next page shows the route to every command. This overview shows the big picture of the SuperCalc3 command structure. Use the map as a guide to help you move through the program.



Each command described in this chapter begins with its portion of the command map.

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Key: is labeled **RETURN** on your keyboard

/ Arrange	Row	row number	<input type="checkbox"/>	for entire row; ascending sort; no adjust		
		<input checked="" type="checkbox"/> current row	,	col. range	Ascend	Yes adj. <input checked="" type="checkbox"/> primary
	Col	col. letter	,	row range	Descend	No adj. <input type="checkbox"/> secondary
		<input checked="" type="checkbox"/> current col.	<input type="checkbox"/>	for entire column; ascending sort; no adjust		

/ Blank — { range 
 for current cell
 * graph range

/ Copy	[from range, — to upper/left cell of destination range —] (u) adjust [from ★ graph number (1-9), — to graph number (1-9) (u)], options	No adjust
		Ask for adjust Values only + - ★ /

Delete — **Row** — row range (to delete one or more rows of data) (↵)
Column — column range (to delete one or more columns of data) (↵)
File — filename (to delete a file from disk in data drive or drive specified) (↵)
ESC for current filename
 (↵) for Directory options

/ Edit — **any cell** ()
 () for current cell

/ Format	Global level	Integer for no decimals	TL text left justification
	Column level — column range, _____	General (num. with best fit)	TC text centered
	Row level — row range, _____	Exponential numbers only	★ for asterisk linear display
	Entry level — any range, _____	\$ for two decimal places	User-defined format - (1-8)
	Define table (User-defined formats: \$n.nnn; (neg. #); 0 = blank; %; dec. places; scaling)	Right numeric justification Left numeric justification TR text right justification	Hide values Default settings (G, R, TL, 9) (0-127) column width

Directory Options

Change date directory path

Display all filenames

See .CAL filenames & graph names

Enter filename

Volumes on-line

Graphs—current spreadsheet

Revise graph directory path

Range Entry Examples [Use: or (A5:H5 or A5:H5)]

Top-left cell:	A1	Max. bot.-right cell	BK254	Block range:	C3:H20
Row:	7	Column:	G	Entire spreadsheet:	ALL
Partial Row:	A5:H5	Partial column:	D2:D18	Graph range:	3 or 1:9
Row range:	2 or 2:10	Column range:	A or A:P	Graph number:	6

- / Global — [Interface menu (serial or parallel card & port options)
Keep (settings at Global menus, Output Setup, & Directory)
Graphics menus — [Colors menu (graph component colors)
Formula display (on/off) — [Fonts menu (graph type styles)
FF for text entry (on/off) — [Layout menu (graph or sheet size & graph position)
Next to auto-advance cursor (on/off) — [Options menu (graph appearance & device settings)
Border display (on/off) — [Device Selection menu (select graphics printer or plotter)
Tab to skip blank & protected cells (on/off)
Protect to edit protected cells (on/off)
Row or Column order of calc.
Manual or Automatic recalculation
- / Insert — [Row — row range (to insert one or more empty rows) (↵)
Column — column range (to insert one or more empty columns) (↵)
- / Load — [filename, — [All — from range, — to upper/left cell — [(↵) adjust — [No adjust
ESC for current name, — [Part — from range, — to upper/left cell — [(↵) adjust — [Ask for adjust
(↵) for Directory options [Consolidate [Values only
★ — from graph range, — to first graph number (1-9) [+ - ★ /
- / Move — [Row — from row range, — to row number (will be top row if move is up; bot. row if move is down) (↵)
Column — from col. range, — to col. letter (will be left col. if move is left; right col. if move is right) (↵)

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Enter filename

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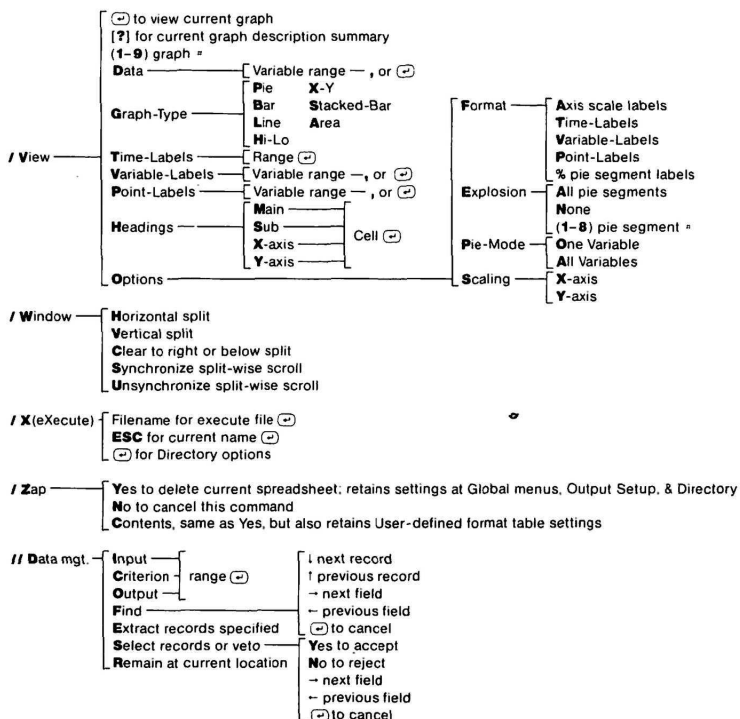
Revise graph directory path

Range Entry Examples (Use: or, A5:H5 or A5:H5)

Top-left cell:	A1	Max. bot.-right cell	BK254	Block range:	C3:H20
Row:	7	Column:	G	Entire spreadsheet:	ALL
Partial Row:	A5:H5	Partial column:	D2:D18	Graph range:	3 or 1:9
Row range:	2 or 2:10	Column range:	A or A:P	Graph number:	6

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Directory Options

Change date directory path

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Revise graph directory path

Range Entry Examples [Use:or;(A5:H5 or A5:H5)]

Top-left cell:	A1	Max. bot.-right cell	BK254	Block range:	C3:H20
Row:	7	Column:	G	Entire spreadsheet:	ALL
Partial Row:	A5:H5	Partial column:	D2:D18	Graph range:	3 or 1:9
Row range:	2 or 2:10	Column range:	A or A:P	Graph number:	6

The Cell Range

Many commands require you to specify a cell range. SuperCalc3 uses the following range designators.

Cell	A column and row co-ordinate. Example: J10
Column	A letter (or pair of letters) from A through BK. Example: AF
Partial Column	Two cells in the same column, separated by a colon or period. Example: The range N2:N15 includes all cells in Column N from N2 through N15.
Column Range	Two columns separated by a colon or period. Example: The range A:BC includes all columns from A through BC.
Row	A number from 1 through 254.
Partial Row	Two cells in the same row, separated by a colon or period. Example: The range N2:T2 includes all cells in row 2 from N2 through T2.
Row Range	Two rows separated by a colon or period. Example: The range 6:88 includes all rows from 6 through 88.
Block	Two cells, separated by a colon or period. Example: The range D5:AP75 includes all cells in the block between D5 in the upper left and AP75 in the lower right.

- Graph** A number from 1 through 9, preceded by an asterisk (in many cases, the asterisk is optional).
Example: *1.
- Graph Range** Two graph numbers, separated by a colon or period.
Example: The range *1:3 includes graphs 1,2, and 3.

A// means the range A1: Last Col/Row

[RETURN] enters the current cell, row or column.

[Esc] allows the arrow keys to point to a cell (**[Esc]** to Point function).

Note

A cell range may be specified in ascending or descending order. For example, D10:A6 is equivalent to A6:D10, A10:D6, or D6:A10.

The Range Delimiter (.) or (:)

In SuperCalc3 range entries, a period or a colon can be used as a range delimiter. For example, AJ200.BD250 or AJ200:BD250.

The SuperCalc3 Directory Options Menu

The following slash (/) commands allow you to view the Directory Options menu prior to selecting a filename:

Delete, File
Load
Output,....Disk
Save
eXecute
Quit, To

When you press **[Return]** for *Directory options*, your spreadsheet disappears and you see the *Directory Options menu*.

The information at the top of the menu tells you on which disk and sub-directory your graph plotting and data files are located, and your current spreadsheet (the name of the last file you loaded for this SuperCalc3 session, or *NONE*).


```

DIRECTORY OPTIONS MENU
Graph directory path is
  /GRAPH/
Data directory path is
  /CURRENT.PATH/
Current spreadsheet file is
  NONE
DATA PATH OPTIONS
  C(hange) data directory path
  D(isplay) all filenames
  S(ee) .CAL filenames & graph names
OTHER OPTIONS
  E(nte)r filename
  V(olumes) on-line
  G(raphs) - current spreadsheet
  R(evise) graph directory path
CTRL-Z to abort command or return to spreadsheet

Enter C(hange), D(isplay), S(ee), E(nte)r, V(olumes), G(raphs), R(evise)
7>/Load,

```

Screen 3-1: SuperCalc3 Directory Options Menu

The *C(hange) data directory path* option lets you switch to a different disk and sub-directory for your work. The current data directory path is assumed to be the one you want when you load or save a spreadsheet file, unless you precede the filename with a different path specifier.

A directory path (called a *Prefix* by ProDos) includes the disk volume name and, optionally, one or more sub-directory names. For example /DATA/TAX.REPORTS/, where /DATA/ is the disk volume, and /TAX.REPORTS/ is a sub-directory.

The *Change* option lets you make a new sub-directory if the sub-directory name you enter does not exist on the current data disk.

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The *D(isplay) all filenames* option displays filenames in the data directory catalog only.

The *S(ee) .CAL filenames* and graph names option displays information about spreadsheet files only. For each filename it shows any associated graph names, graph numbers, and graph types. It also shows the contents of cell A1, if text. Any spreadsheet saved without the default suffix .CAL is excluded from the *See* display.

The *E(nte)r filename* option returns you to the entry line to enter a filename.

The *V(olumes) on-line* option displays a list of disk volumes in your active disk drives, and the card slot associated with each drive (if applicable to your computer).

The *G(raphs)* option displays graph names, graph numbers, and graph types associated with the current spreadsheet file.

The *R(evise) graph directory path* option lets you change the directory path (Prefix) to your graph plotting files. The original set of graph plotting files are shipped on the SuperCalc3 /GRAPH disk. The default graph directory path is /GRAPH/, meaning the program expects /GRAPH to be on-line when you enter a graph view or plot command.



Arrange

Synopsis:

Sorts specified spreadsheet data by a column or row.

/ Arrange	Row	row number	⌘ for entire row, ascending sort; no adjust					
		⌘ current row	col. range	Ascend	Yes adj.	⌘ primary	row number	Ascend
	Col.	col. letter	row range	Descend	No adj.	secondary	col. letter	Descend
		⌘ current col.	⌘ for entire column; ascending sort; no adjust					

Command Description:

The *Arrange* command sorts your spreadsheet data based on the cell values of one or two columns or rows. The *Arrange* options are:

- Row or Column Sort based on the values in either a row or column. When you sort by a row, the columns are arranged, when you sort by a column, the rows are arranged.
- Specify a partial column or row. You specify a partial column for a row sort or a partial row for a column sort.
- Specify the sort order, either ascending or descending.
- Specify whether to adjust or not adjust formulas.
- Specify a secondary column or row sort, independently selecting ascending or descending order, but using the cell range and adjust/no adjust selections established for the primary sort key.



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Column Sort

A sort by *Column* rearranges the spreadsheet rows so that the *key* column is in ascending or descending order.

When you select a column sort, you first specify the key column letter. A **[RETURN]** enters the current column and begins the sort. The following defaults apply:

- All rows are sorted.
- Ascending sort order.
- No formula adjust.

Row Sort

A sort by *Row* rearranges the spreadsheet columns so that the *key* row is in ascending or descending order.

For a row sort, you specify the key row. A **[RETURN]** enters the current row and begins the sort. The following defaults apply:

- All columns are sorted.
- Ascending sort order.
- No formula adjust.

To select non-default values, enter the row/column then a comma (,). SuperCalc3 prompts for all of the following options:

Enter the range of the row/column you want.

- If you are sorting by a column, specify the row range to be included in the sort.



- If you are sorting by a row, specify the column range to be included in the sort.
- You may enter **All** to specify the entire row/column range.

Select the sort order

- You may select between *Ascending* or *Descending* sort order. SuperCalc3 arranges data first according to the type of data a cell contains, then according to the cell value. See Special Considerations for more information.

Adjust Yes or No?

You may select whether to adjust cell formulas.

- If you select *Yes*, SuperCalc3 sorts your spreadsheet, then adjusts the formulas. If *Global, Auto* is in effect it also recalculates each formula as it sorts.

When sorting records (rows) in a block of data, a *Yes* response will retain the integrity of the formulas only if all cell references in each row refer to that row only (for example, A1 + B1 in row 1).

- If you select *No*, SuperCalc3 does not alter the cell formulas or recalculate values. This is the default.
- When sorting records (rows), use the *No* response if cell references within a row refer to cells *outside* that row (for example, A1 + B2 in row 1). You are in fact declaring that the relationship among the cell formulas are no longer needed (at least temporarily), and that you prefer a new arrangement determined by the current values only.



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- A **[RETURN]** at this point initiates a primary sort.
- A (,) initiates a secondary sort row or column.

The secondary sort is similar to the primary sort. If the first sort is on a row, the secondary sort must also be on a row (the same is true for columns).

A secondary sort is a tie-breaker. For example, if a primary sort contains ten "Smith" entries, a secondary sort by first name, or by salary, etc., is generally called for.

Examples:

To arrange all columns by the current row (default options are ascending sort order and no formula adjust):

/Arrange,Row [RETURN]

To arrange all rows by the current column (default options are ascending sort order and no formula adjust):

/Arrange,Column [RETURN]

To arrange all columns by a different row (default options):

/Arrange,Row,14 [RETURN]

To arrange all rows by a different column (default options):

/Arrange,Column,E [RETURN]

To arrange a row in ascending sort order with no formula adjust.

/Arrange,Row,7,C:G,Ascending,No [RETURN]

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To arrange a range of rows by a column using descending sort order and to adjust formulas:

/Arrange,Column,D,7:19,Descending,Yes [RETURN]

To arrange a range of rows first on column A (ascending), then on column B (descending) where, for example, column A has names, column B has salaries:

/Arrange,Column,A,5:20,Ascending,Yes,B,Descending

Special Considerations:

1. If you think you may want to return your spreadsheet to its original entry order, use the *Replicate* command to create a separate row or column containing sequential numbers prior to using *Arrange*. This may be particularly helpful when you are performing an *Arrange* with *No* formula adjustment.

For example, to enter the numbers 1 to 254 in column A:

At cell A1 enter **1**

At cell A2 enter **A1 + 1**

At cell A3 enter **/Replicate,A2,A3.A254**

2. To protect yourself against changing your spreadsheet in ways that you do not anticipate, *Save* the spreadsheet to a disk file prior to using *Arrange*.



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3. Regardless of the sort order, cells are arranged first in groups by contents and value types. That is, in the key row or column on which data is sorted, text cells are sorted first, then cells containing textual values, and so on, as follows:

Text Cells (includes Repeating Text)

Textual Value Cells

Date Value Cells

Error Cells

Not Available Cells

Numeric Value Cells

Blank (Empty) Cells

Within those groups, SuperCalc3 uses a sort order that is different from the ASCII sort order. This sort order is unique to the SuperCalc line of products and more closely approximates dictionary order.

The order is:

Space.

Other non-numeric, non-alpha characters in ASCII order.

Alpha characters, with lower case characters preceding their upper case counterparts.

Numeric characters.

Blank or empty cells.

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Specifically, the order is:

spacebar

!
"
-
\$
/
&
,
(
)
*
+
,
¢
.
/

(continued)

:
;
%
?
@
[
]
"
[

(continued)

;
*
aAbBcC...zZ
0
1
2
3
4
5
6
7
8
9



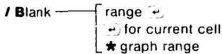
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Blank

Synopsis:

Erases the contents and resets the display format of a cell range or graph range.

Paste Blank Command Diagram Here



Command Description:

The *Blank* command deletes the contents of all unprotected cells in the specified range. The display format is reset to the default settings for cells formatted at the Entry level. Column, Row, and Global display formats are unaffected.

Omit specifying the Range to blank the current cell.

The specified graph(s) is deleted. Remaining graphs are *not* resequenced:

Examples:

Blank single cell:	/Blank,C7 [RETURN]
Blank block of cells:	/Blank,C7:H12 RETURN]
Blank entire column:	/Blank,C [RETURN]
Blank all unprotected cells:	/Blank,ALL [RETURN]
Blank single graph:	/Blank,*3 [RETURN]
Blank range of graphs:	/Blank,*5:7 [RETURN]



Special Considerations:

1. *Blank* sets the default display format conditions for cells that are formatted at the Entry level only. *Blank* does not affect the cell format of cells formatted at the Row, Column or Global levels.
2. *Blank* sets the default graph formats for deleted graphs. It does not resequence the graph numbers.



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Copy

Synopsis:

Duplicates cells or graph descriptions into a new spreadsheet or graph description location. Options allow a choice of formula adjustment or consolidation arithmetic for cells.

Paste Copy command Diagram Here

/ Copy — [from range , — to upper/left cell of destination range — [⌂ adjust [No adjust
[from ★ graph number (1-9) , — to graph number (1-9) ⌂] , options — Ask for adjust
Values only
+ - ★ /

Command Description:

The *Copy* command makes a one-to-one duplicate of the source range into the destination range. *Copy* duplicates the cell contents, cell values and display formats exactly. The source range remains intact.

The destination cell becomes the upper left corner of the destination range. The destination range takes on the same size and shape as the source range. When used to copy a graph, all graph settings and data ranges are duplicated.

For cells, the options allow you to specify *Formula Adjustment* or *Consolidation* arithmetic for the destination range. A **[RETURN]** provides the default option, formula adjustment. To select another option, enter a comma (,) and specify the remaining options. There are no options when copying a graph.

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-
- [RETURN]** *Formula Adjust* — The default selection copies and adjusts formulas to their new location.
- N** *No Adjust* — Copies cell contents literally with no formula adjustment.
- A** *Ask for Adjust* — Prompts for formula adjustment for each cell copied. The command line displays the formula and the prompt line displays the source cells. SuperCalc3 prompts for each cell reference adjustment.
- V** *Values* — Copies cell values only as numeric constants. Formulas are evaluated and their values only (not the actual formulas) are copied. Dates change to their DVAL function value.
- +** *Adds* each source cell value to the corresponding destination cell value and enters the sum into the destination cell as a numeric constant.
- *Subtracts* each source cell value from the corresponding destination cell value and enters the difference into the destination cell as a numeric constant.
- *** *Multiplies* each source cell value with the corresponding destination cell value and enters the product into the destination cell as a numeric constant.
- /** *Divides* each destination cell value by the corresponding source cell value and enters the quotient into the destination cell as a numeric constant.



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Examples:

Copy cell to cell:

/Copy,B9,C12 [RETURN]

Copy partial column to partial column:

/Copy,B9:B12,H9 [RETURN]

Copy partial row to partial row:

/Copy,B9:G9,H12 [RETURN]

Copy block to block:

/Copy,B9:G15,K20 [RETURN]

Copy without adjustments:

/Copy,B9,C12,N [RETURN]

Copy, ask for individual choice of adjustments:

/Copy,B9:B15,E9,A [RETURN]

Copy one graph description to a different graph description location:

/Copy,*1,3 [RETURN]



Special Considerations:

1. The +, -, *, / options do not affect a cell that does not contain a *Form* (formula) entry with a numeric value.
2. The +, -, *, / options perform the indicated calculation between cells, and replaces the destination cell contents with the calculated value as a numeric constant.
3. The Left Cursor key *backs out* of the option list to let you select the default **[RETURN]**. See Chapter 2.
4. See The *Load* command for more details on Consolidation.
5. Cells can be copied into themselves. This can be used for such things as freezing values, or for saving memory. For example, you can generate a series such as 1...20 without using computer memory for a formula with the following sequence.

Step 1. Enter **1** in cell A1.

Step 2. **/Replicate,A1,A2:A20 [RETURN]**

Step 3. **/Copy,A1:A19,A2, +**

Then, to generate a table of numeric squares.

Step 4. **/Copy,A1:A20,A1,%**



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Delete

Synopsis:

Erases a row range, column range or disk file.

/ Delete	—	Row	—	row range (to delete one or more rows of data) (↵)
		Column	—	column range (to delete one or more columns of data) (↵)
		File	—	filename (to delete a file from disk in data drive or drive specified) (↵)
				ESC for current filename
				(↵) for Directory options

Command Description:

The *Delete* command erases a row range or column range from your spreadsheet, or a file from your disk.

Delete erases the row range or column range, then moves the adjacent rows or columns to fill in the gap created. Formulas adjust to compensate.

The *Delete,File* option erases a file name from the current or specified disk drive and directory. If the **[Esc]** key is pressed in response to the filename prompt, the name of the last file *Loaded* is placed on the entry line. A **[RETURN]** displays the Directory Options Menu.



Examples:

To delete row 5:

```
/Delete,Row,5 [RETURN]
```

To delete column E:

```
/Delete,Column,E, [RETURN]
```

To delete file *WORK1.CAL* from the */DATA* disk:

```
/Delete,File,/DATA/WORK1.CAL [RETURN]
```

To delete multiple rows:

```
/Delete,Row,5:10 [RETURN]
```

To delete multiple columns:

```
/Delete,Column,B:F [RETURN]
```

Special Considerations:

1. Formulas adjusted into cells that no longer exist are considered an ERROR. See Chapter 4 for more information on ERROR.
2. There is no provision to not adjust formulas.
3. If a deleted row range or column range is within the block range specified by a function reference (such as SUM(A1:D10)), the formulas adjust. If a deleted row/column range includes one of the extreme rows/columns of the block range specified by a function reference (such as SUM(A1:D10)), an error message results. You can then use the in-line editor to modify the command.



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4. If a deleted row or column contains a protected cell, an error message results.
5. Rows or columns containing data cannot be reaccessed once they are deleted.
6. Files are deleted permanently; they cannot be restored even with a disk-fixing utility.



Edit

Synopsis:

Edits the contents of a cell and places it in the current cell.

/ Edit — [any cell (↔)
 (↔) for current cell

Command Description:

The *Edit* command is used to alter the contents of a source cell and place it into the current cell. *Edit* copies the source cell contents to the edit line where it may be altered as any other data entry. A **[RETURN]** places the data on the edit line into the current cell.

You may specify any cell as the source cell. If you do not specify a source cell, e.g., press **[RETURN]**, the current cell becomes the source cell.

Edit uses the in-line editor. The editing commands are identical to data entry.



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Special Considerations:

1. See the section on Data Entry Mode for a detailed description of the in-line cursor commands available. (Chapter 2)
2. You cannot edit into a protected current cell, but you can edit another protected source cell.
3. The **[Esc]** key may be used to point to a source cell. Press **[Esc]** then move the spreadsheet cursor to the source cell and press **[RETURN]** to enter that cell on the edit line. See the discussion on Editing vs. Pointing in Chapter 2.
4. The **[Tab]** key moves the cursor to the beginning of the edit line. If it is already at the beginning the cursor moves to the end of the line.



Format

Synopsis:

1. Sets the cell display format on four levels: *Global*, *Column*, *Row* and *Entry*.
2. Defines the *User-defined* formats.

/ Format	Global level — Column level — column range , Row level — row range , Entry level — any range , Define table (User-defined formats: \$n.nnn, (neg. #), 0 : blank, %: dec. places, scaling)	Integer for no decimals General (num. with best fit) Exponential numbers only \$ for two decimal places Right numeric justification Left numeric justification TR text right justification	TL text left justification TC text centered * for asterisk linear display User-defined format - (1-8) Hide values Default settings (G, R, TL, 9) (0-127) column width
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Command Description:

The *Format* command specifies display format characteristics. To select the display format options you first select the level of format.

Format only affects the display of the cell value. It does not affect the cell value itself or the cell content. The display format controls both the screen image and the printed output.

Successive formatting commands may result in a conflict of formats for a given cell. For example, you may format an entire spreadsheet using *Global* and then specify a different format for a row. Or you may format a row and a column differently. Where formats differ, SuperCalc3 uses the following order of precedence.

1. *Entry*
2. *Row*
3. *Column*
4. *Global*



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If you specify options using the *Global* level, then later select different options for a Column, the *Column* format overrides the *Global* format for that column. Similarly, if you select options for a row, the cell that intersects the column takes on the *Row* format. Finally, any cells specified using *Entry* override all other specifications.

SuperCalc3 prompts with the *Format* options:

(I,G,E,\$,R,L,TR,TL,TC,*,U (1-8),H,D,column width)

- I** *Integer* — Displays numbers as integers, rounding as necessary to produce whole numbers. No decimal point displays.
- G** *General* — Displays numbers as an integer if the number is an integral value, or in decimal format if the column width allows. Numbers larger than the column width display in *Exponential* format.
- E** *Exponential* — Displays numbers in exponential form using conventional scientific notation. Numbers are expressed as a power of ten containing one significant figure to the left of the decimal point. The letter *e* delineates the numeral from the order of magnitude. For example, 1776 is 1.776e3.
- \$** *Money* — Displays numbers with two digits after the decimal point. The character **\$** does not display.

Note: To display the \$, use the *Floating \$ User-defined* format option.

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-
- R** *Right* justifies formula values, including dates and textual values, to the right.
- L** *Left* justifies formula values, including dates and textual values, to the left.
- TR** *Text Right* justifies text entries to the right.
- TL** *Text Left* justifies text entries to the left.
- TC** *Text Center* positions text in the center of the cell. If the text cannot be centered, the text shifts one space to the left. For example, a five-letter word in a six character column, or a six-letter word in a seven character column would shift to the left.
- *** *Linear Display* — Displays asterisks to represent numbers. Use this format to create a simple graphic representation of a range of values. For example, the number 1 displays as 1 asterisk, the number 5 as five asterisks, etc. For a sample, see Lesson 6.
- U(1-8)** *User-defined* format — Displays the cell value according to the characteristics defined in the selected column of the User-defined format table.
- H** *Hide* causes the cell to display as blank. The value does not display on screen nor print on the printer. The cell content is not affected.



THE SLASH COMMANDS

D Removes previously set Format options at the level specified and for the range specified. At the Global level *Default* returns the display format to its initial settings:

G *General*

TL *Text Left* justification

R *Right* numeric justification

9 column width

(0-127) Enter a number (0-127) to set the column width between 0-127. Column width can be set for *Global* and *Column* formats only.

User-defined Formats

The *Define* option specifies seven display properties for eight *User-defined* formats. Any of the eight User-defined formats may contain any combination of properties.

The *User-defined* format has two aspects.

1. You specify the properties for each format using a built-in table of options.
2. You assign the format to the cells that you want to contain those properties. To change the properties of a group of cells, all you need to do is redefine the format in the format table.

The *Define* option shows you the default User-defined format table. You can move the cursor to any location in the format table and your choices display in the prompt line.



	User-defined formats							
	1	2	3	4	5	6	7	8
Floating \$	Y	Y	Y	Y	Y	Y	Y	Y
Embedded Commas	Y	Y	Y	Y	Y	Y	Y	Y
Minus in ()	N	N	N	N	N	N	N	N
Zero as Blank	N	N	N	N	N	N	N	N
X	N	N	N	N	N	N	N	N
Decimal Places	2	2	2	2	2	2	2	2
Scaling Factor	0	0	0	0	0	0	0	0

The prompt line shows the valid choices, either Y/N or 0-7. Each format is described below.

Floating \$

Y Precedes numeric values with a Dollar Sign \$.

N A Dollar Sign is not used.

Note: This property is not the same as the \$ option from the *Format* options list, which displays numbers using 2 decimal places, but without a dollar sign.



THE SLASH COMMANDS

Embedded Commas

- Y** Enters a comma between every third place to the left of the decimal for a numeric value.
- N** No commas are entered into numeric data.

Minus in ()

- Y** Encloses negative numeric values in parentheses. Positive numbers shift one place to the left to align the decimal point with negative numbers in the same column.
- N** Precedes negative numeric values with a minus sign -.

Zero as Blank

- Y** Displays a blank if the numeric value of the cell is zero.
- N** Displays a zero if the numeric value of the cell is zero.

%

- Y** Multiplies a numeric value by 100 and expresses it as a percent with a % appended.
- N** The numeric value is unaffected.



Decimal Places (Alignment)

- 0-7** Specifies the number of digits displayed after the decimal point. Internally, SuperCalc3 continues to work with 16 decimal places.

Note: Setting this value to 2 has the same effect as the *Format,\$* option.

Scaling Factor

- 0-7** Specifies the power of ten by which the number displayed is scaled down. The cell value is divided by the power of 10 indicated. For example, a scaling factor of 3 displays the actual cell value divided by 1000 (in *thousands*).



Format Types

There are four types of display format characteristics. Each cell has one and only one format characteristic from each category in effect at any given time. When you assign a new display format option, it replaces the current one for that category.

1. Numeric representation (in value display mode)

- I** Integer
- G** General
- E** Exponential
- \$** Money format
- *** Graphic display

U(1-8) User-defined format

- H** Hide (Note: Also hides *Text* and *Rtxt* entries).

2. Formula justification, including numeric, date and textual value (in value or formula display mode).

- R** Right numeric justification
- L** Left numeric justification

3. Text alignment

- TR** Text Right alignment
- TL** Text Left alignment
- TC** Text Center alignment



4. Column width

(0-127) Set the column width to the designated number.

Examples:

Format column E to be 12 characters wide:

```
/Format,Column,E,12 [RETURN]
```

Format rows 7 to 12 to be TextRight:

```
/Format,Row,7:12,TextRight, [RETURN]
```

Globally format spreadsheet for money format and 11 character column width:

```
/Format,Global,$,11, [RETURN]
```

Format block for exponential format:

```
/Format,Entry,A7:H8,Exponential, [RETURN]
```

Special Considerations:

1. To cope with *narrow* columns when displaying numeric values, SuperCalc3 has several tactics:
 - a. Round off and drop the right most mantissa digits (the digits to the right of the decimal point).
 - b. Omit the decimal point, i.e. display in Integer format.
 - c. Display >>>>> characters when the integer will not fit in the column.



THE SLASH COMMANDS

2. The number of decimal places displayed is affected by the display option and the column width selected. SuperCalc3 always uses a full 15 digits when calculating. This may result in displayed numbers *not* adding up, when, for example, the *Format,\$* command is used. The ROUND function (Chapter 4) may be used to force SuperCalc3 to calculate to a certain limited precision (for example pennies).
3. The User-defined format table is *Saved* with the spreadsheet on disk, and is reset to the default state (all Floating Dollar, Embedded Commas and two decimal places) by *Zap, Yes. Zap, Contents* preserves the state of the table.
4. The *Format,Row* command allows you to specify individual formats for rows 1 through 254.



Global

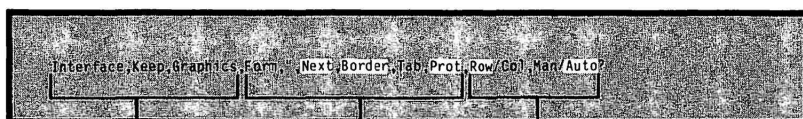
Synopsis:

Sets the spreadsheet global options.

/ Global	Interface menu (serial or parallel card & port options)	
	Keep (settings at Global menus, Output Setup, & Directory)	
	Graphics menus	Colors menu (graph component colors)
	Formula display (on/off)	Fonts menu (graph type styles)
	¶¶ for text entry (on/off)	Layout menu (graph or sheet size & graph position)
	Next to auto-advance cursor (on/off)	Options menu (graph appearance & device settings)
	Border display (on/off)	Device Selection menu (select graphics printer or plotter)
	Tab to skip blank & protected cells (on/off)	
	Protect to edit protected cells (on/off)	
	Row or Column order of calc.	
	Manual or Automatic recalculation	

Command Description:

The *Global* command options specify settings for the entire spreadsheet. When you enter */Global*, the prompt line displays:



menu options

on/off toggles

calculation options



THE SLASH COMMANDS

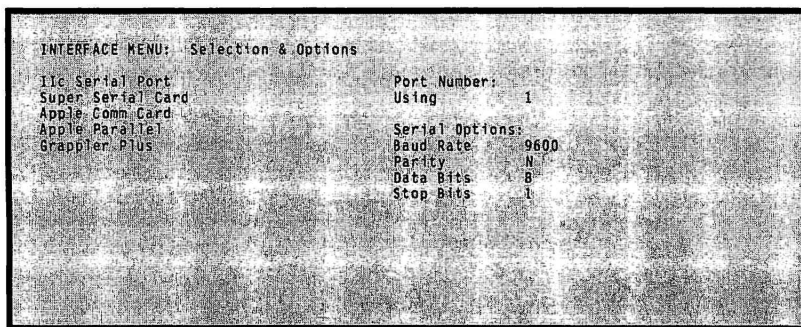
Interface and *Graphics* let you access one or more lists of additional selections called “menus.” *Keep* retains any changes made at the Interface and Graphics menus for future work sessions: The new settings become program defaults.

Keep also retains the current *Output, Setup* and *SuperCalc3 Data and Graph directory path* settings as program defaults.

The current settings for the on/off toggles and calculation options are highlighted on your screen. Highlighting indicates the toggle is *ON* and the option is activated. The prompt line above shows the original default settings. If you change a setting, the highlighting reflects that change, and the change is saved with the spreadsheet.

Menu Options: Interface, Graphics, and Keep

On all menu screens, move the cursor from one option to another with the **[up arrow]** or **[dn arrow]** key. Move from section to section with the **[Tab]** key. Clear a menu with **[Apple 2]** or **[Control Z]**.



Screen 3-2: Interface Menu



The Interface Menu

The list of serial and parallel cards shown in the Interface menu illustration may differ in your version of the program. Check the Interface menu in your program for the current list of cards.

- I *Interface* menu lets you change port settings and parallel or serial card selection and settings.

Ports and Cards:

The initial program defaults are set for the IIc Serial Port and Port Number 1: These are the correct settings for the Apple IIc.

All card selections (Super Serial, Apple Comm, etc.) are provided for Apple IIe users only. A printer or plotter might be cabled to the Apple IIe through any one of the supported cards listed on the menu. Select the card you are using. If you are not sure which of the listed cards (or types of cards) is compatible with your card, try each appropriate selection. One of the selections should be correct for your Apple IIe:

If you have a serial card that is "Apple IIc compatible", then the IIc Serial Port is probably the correct selection. Super Serial Card and Apple Comm Card are serial card selections. Apple Parallel and Grappler Plus are parallel card selections. Serial options can be changed only if a serial card is selected.



THE SLASH COMMANDS

Serial Options:

The Serial Options settings shown in the illustration match the typical switch settings at an Image Writer or Apple Scribe printer, and many other printers and plotters.

If the Serial Options at the *Interface* menu do not match the switch settings at your printing or plotting device, you can either change the settings at your device, or change the settings at the menu, but the menu and device settings must match.

Baud Rate specifies the data transmission rate in bits per second.

Parity (Odd, Even, or None), Data Bits (7 or 8), and Stop Bits (1 or 2), specify the method of data transmission. In almost every case, the program default settings (shown in the illustration) are correct.

Additional help:

Appendix C in this manual provides information about printers and plotters supported by SuperCalc3. Illustrations of device switches, showing recommended settings, are included. If additional devices are supported after this manual is printed, a disk file named SWITCHES.CAL, providing information similar to that in Appendix C, will be included on one of the release disks. SWITCHES.CAL can be loaded into the program as a spreadsheet.

Saving Interface menu settings:

Once set, you can keep the settings and selections as program defaults with the *Global,Keep* command.



Special Considerations:

1. If your printer double spaces when you expect single spacing, the fault is probably not an incorrect setting at the *Interface* menu. Enter the *Output...Setup* command to display the Printer Setup menu. First make sure the Double Space Report setting is OFF (the initial default). If that setting is OFF, turn off the Line Feed (End-Line-Feed option). Your printer should stop adding unwanted blank lines. Save Printer Setup menu settings as program defaults with the *Global,Keep* command.

The Global,Keep Command

K *Keep* retains these full-screen menu settings as program defaults:

/Global,Interface — settings at Interface menu.

/Global,Graphics — settings at all Graphics menus.

/Output,...Setup — settings at Setup Printer menu.

Data & Graph directory path — setting at Directory Options menu.

The *Keep* command replaces your present disk program file with one containing the current settings.

When you select *Keep*, this prompt appears:





THE SLASH COMMANDS

Enter **Yes** to save all of the current settings, or **No** to return to the spreadsheet.

Reminder: *Global,Keep* does not save spreadsheets or graphs.

Be sure to save your current spreadsheet and graphs with the */Save* command before entering the */Zap* or */Quit* command. Global on/off toggles and calculation option settings are saved with the spreadsheet.

Graphics Menus: Colors, Fonts, Layout, Options, and Device

G *Graphics* lets you access five menus containing graph-related settings. Settings at the *Fonts* and *Layout* menus affect the appearance of the plotted graphs, but do not affect the way they appear on screen.

Graph appearance settings at the *Options* and *Color* menus affect the way the graphs display on screen or plot on your plotting device.

The *Device Selection* menu lists the plotters and graphics printers that SuperCalc3 supports. Selecting a plotting device is typically a one-time program setup procedure.

All graph settings have initial defaults. If you change any settings under this command, your changes remain in effect for the current SuperCalc3 work session. For example, if you specify horizontal grids at the *Options* menu, all graphs (except Pie graphs) will have horizontal grid lines until you change the setting or until you *Quit*.

Enter the *Global,Keep* command to modify the SuperCalc3 program defaults: All graphs, at all subsequent work sessions, will reflect your changes.



When you enter **G**raphics, the prompt line displays these options:

C(olors), F(onts), L(ayout), O(ptions), or D(evice)?

Colors Menu

- C** *Colors* menu lets you change numbers assigned to graph colors viewed on a color monitor screen, and to pens at your plotter. For example, the number 0 corresponds to the screen color or pen for the Headings and several other graph components.

```

COLORS MENU: SELECTIONS FOR PLOTTING

Variables:
[A] 1
B 2
C 3
D 4
E 5
F 6
G 7
H 8
I 9
J 10

Labels:
Axis 0
Time 0
Vars V
Point V

Headings:
Main 0
Sub 0
X-Axis 0
Y-Axis 0

Field:
Axes and Box 0
Grids 0
Ticks 0
Solid-Fill Outline 0

Color number < 0-99> or N(one):
    
```

Screen 3-3: Colors Menu



THE SLASH COMMANDS

Notice that the Variable-Labels (Vars) and Point-Labels can be set to a single color, or to a V setting. The V setting matches the color of each label with its corresponding Variable. Any color can be assigned to any Variable or any other graph component.

When plotting more than ten data Variables, the program lets you specify colors (or pen numbers) for the first ten, Variables A through J, then repeats the color sequence for additional Variables.

Plotter colors:

SuperCalc3 prompts you to change pens during the plotting process as needed.

The 0 pen (and every other pen number) can be any color or pen size you choose. If you want the Sub-Heading to be the same color as Variable A, change the setting of Sub to the setting for Variable A (on the menu illustration, from Sub 0 to Sub 1).

Screen colors:

The screen color corresponding to each number is determined by the current *Monitor Resolution* setting, *Single* (Hi-Res) or *Double* (Hi-Res), at the *Global, Graphics, Options* menu. Another *Options* menu setting, *Monitor Display*, must be set to *Color* to view colors on- screen (default is *Black & White*).

THE SLASH COMMANDS



In *Double (Hi-Res) Monitor Resolution*, the program default, the fifteen available screen colors are:

0 = White			
1 = Magenta		8 = Brown	
2 = Dark Blue		9 = Orange	
3 = Purple		10 = Grey #2	
4 = Dark Green		11 = Pink	
5 = Grey #1		12 = Light Green	
6 = Light Blue		13 = Yellow	
7 = Medium Blue		14 = Aquamarine	

In *Single (Hi-Res) Monitor Resolution*, the three available screen colors are:

0 = White	
1 = Blue	
2 = Orange	

A "None" setting results in black on-screen, or no color on a graphics printer or plotter.

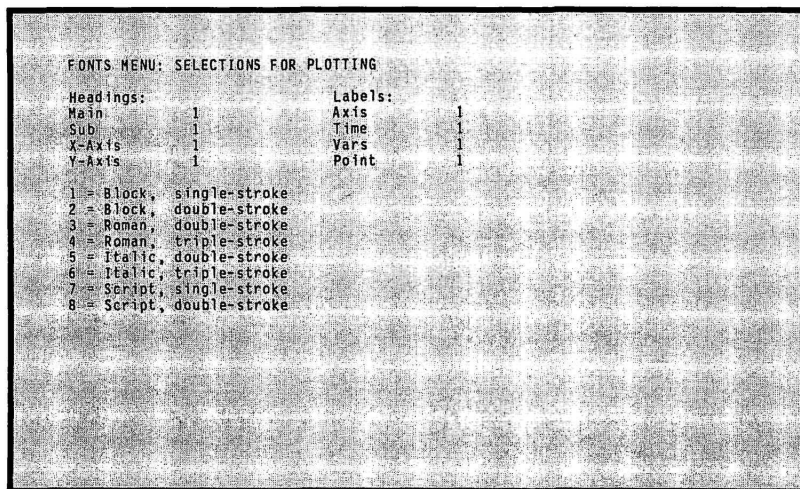
Note: Illustrations in this manual show many headings, labels, etc., in black ink. On your color monitor, any graph feature set at 0 on the Colors menu displays in white.

Monitor Resolution interaction with screen colors:

1. When *Single* Hi-Res is used, on-screen graphs are not as well-proportioned, and Headings and Labels are truncated to a greater extent than with *Double* Hi-Res.
2. See the *Global, Graphics, Options* menu section for more about *Monitor Resolution* settings.



THE SLASH COMMANDS



Screen 3-4: Fonts Menu

F *Fonts* menu allows you to select the typeface style (1-8) for plotting graphs on your plotter or graphics printer. Move the cursor to the appropriate item and enter the number corresponding to your selection. The original default setting for all Headings and Labels is font 1. There is only one font on the monitor screen.

Example of FONT 1

Example of FONT 2

Example of FONT 3

Example of FONT 4

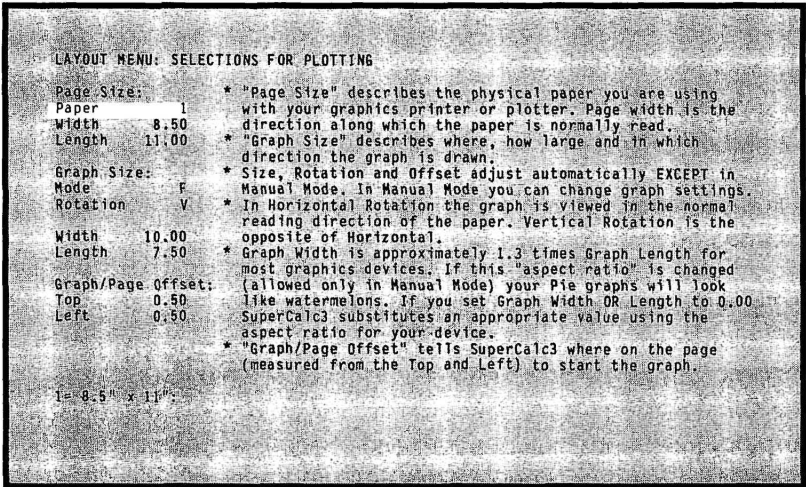
Example of FONT 5

Example of FONT 6

Example of Font 7

Example of Font 8

Appendix B contains a *complete* character set for each font.



Screen 3-5: Layout Menu

- L** *Layout* menu contains settings for the page layout of your plotted graph. Page and Graph Width and Length are set automatically when you select your plotting device at the Device Selection menu. By changing *Mode* to *Manual*, you can alter size, rotation, and offset settings.

A description of each option is displayed on the Layout menu. See sample menu above.



THE SLASH COMMANDS

Graph Size Mode has the following options:

F(ull), M(anual), T(op), B(ottom) or quarter <1-4>:

F *Full*, the default setting, plots the graph on an entire page.

M *Manual* allows you to change Page or Graph Size, Rotation, and Graph/Page Offset settings.

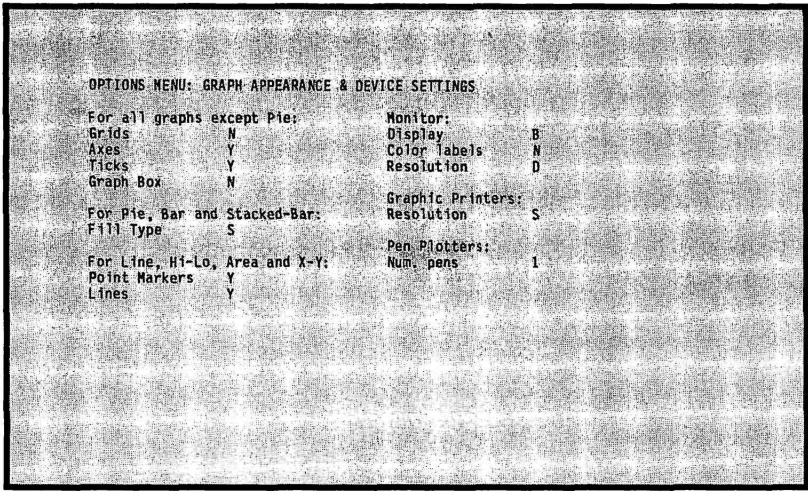
T *Top* draws the graph on the top half of the page.

B *Bottom* draws the graph on the bottom half of the page.

1-4 Draws the graph in the quadrant you select. The quadrant positions, in either paper rotation, are: 1 = upper-left; 2 = upper-right; 3 = lower-left; 4 = lower-right.

1	2
3	4

R The **R**otation option lets you plot the graph either horizontally or vertically in Manual Mode only.



Screen 3-6: Options Menu

- Options menu contains Graph and Device settings. The prompt line provides your options for each item.

Original program default settings are shown on the menu above. Some settings on your screen may differ. The device settings for *Pen Plotters* adjusts automatically whenever a plotting device is selected at the *Device Selection* menu.

The first three sets of options list graph appearance features you can preview on your monitor or plot on your plotting device. The Yes or No settings turn the related graph feature on or off.

The remaining options on this menu allow you to change settings associated with your monitor, plotter, or graphics printer.



THE SLASH COMMANDS

For all graphs except Pie:

Grids	H(orizontal), V(ertical), N(either), or B(oth)
Axes	Y(es) or N(o)
Ticks	Y(es) or N(o)
Graph Box	Y(es) or N(o)

For Pie, Bar and Stacked-Bar:

Fill Type	S(olid), O(utline), or C(rosshatched)
-----------	---------------------------------------

A graphics printer interprets *Solid* as
Crosshatched.

For Line, Hi-Lo, Area and X-Y:

Point Markers	Y(es) or N(o)
Lines	Y(es) or N(o)

Monitor:

Display	C(olor) or B(lack & white)
---------	----------------------------

Color sets a color monitor to color display. A *Color* setting produces undesirable graphs on a monochrome monitor. A *Color* setting displays fewer pixel dots per inch than a *Black & White* setting, so graphs labels are suppressed (with *Color labels* set to *No*), or graphs are compressed and label text is truncated on-screen for best fit (with *Color labels* set to *Yes*). Display settings do *not* cause graphs or text to compress or truncate at your printer or plotter. All Fill Types are supported.

Black & White sets a monochrome or color monitor to *Black & White* (monochrome) display. *Black & White* is the correct setting for a monochrome monitor. This setting displays graphs with more detail (little or no compressing or truncating) on a monochrome **or** color monitor. Outline and Crosshatched Fill Types are supported. A Solid Fill Type setting displays as Crosshatched.



Color labels (N(o) or Y(es)

No, the program default, suppresses graph labels, including pie % labels, on-screen, but not at your plotting device.

Yes does not suppress graph labels, but labels are truncated and graphs are compressed to fit your monitor screen.

Resolution (S)ingle or (D)ouble

Single (Apple Single Hi-Res) has several attributes:

Three monitor colors for graphs.

Produces slightly faster performance speed than Double.

Requires 8K less memory space than the Double setting.

Double (Apple Double Hi-Res) has several attributes:

Fifteen monitor colors for graphs.

Produces slightly slower performance speed than Single.

Requires 8K more memory space than the Single setting.

See the *Global, Graphics, Colors* menu section for a listing of screen colors for each setting.



THE SLASH COMMANDS

Monitor Resolution Expressed in Pixels:

	<u>Single Hi-Res</u>	<u>Double Hi-Res</u>
Black & White	280 x 192	560 x 192
Color	140 x 192	140 x 192

Changing Monitor Resolution:

Double to Single: Select *S* to replace the 15 *Double* colors with the 3 *Single* colors. If 8K more memory is needed, however, *Save* the spreadsheet, select *Single* at this menu, then use *Global, Keep* and *Quit* to reconfigure the program and clear 8K of memory.

Single to Double: To reset to *Double*, the initial program default, *Save* the spreadsheet and select *Double* at this menu. An asterisk (*) replaces *S* on the menu as a signal that *Double* is not yet set. Use *Global, Keep* and *Quit* (or, for example, *Quit, To, /PROGRAM/ SC3*) to reconfigure the program. After program re-start, *D* appears as the *Monitor Resolution* setting.

Graphics Printers:

Resolution *S*(ingle), *D*(ouble), *T*(riple) or *Q*(uad) density

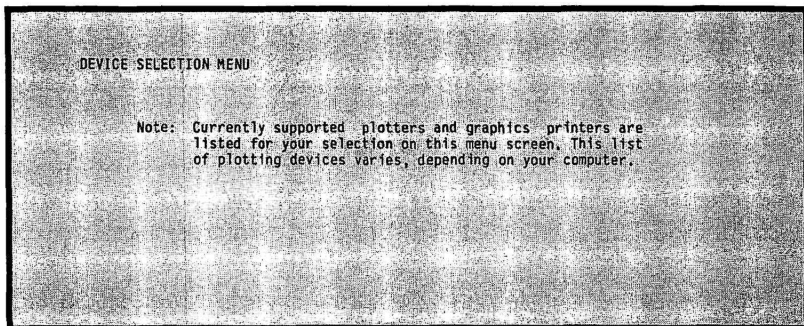
Resolution alters the number of dots per inch. *Single* density, has the fewest dots per inch but the fastest printing speed.

Pen Plotters:

Number of Pens 1 to 16



Specifies the number of penholders (stalls) on your plotter, based on your selection at the *Device Selection menu*.



Screen 3-7: Device Selection Menu

- D** *Device Selection* menu lists the graphics printers and plotters (plotting devices) supported by SuperCalc3. The presently selected device is marked by an arrow. To select an alternate device, move the cursor using the **[Tab]** and **[up arrow]** or **[dn arrow]** key to highlight the appropriate device, then press **[RETURN]**. SuperCalc3 receives the necessary information about your printer or plotter; some settings on the *Global, Interface* menu and the *Global, Graphics, Options* and *Layout* menus are set to match the typical settings for the plotting device you selected.

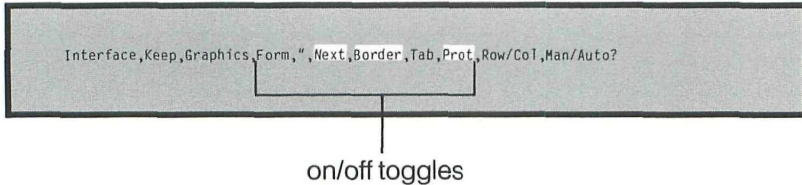
Note: The plotting device you use *must* be selected. This is a one-time program setup procedure. Repeat the device selection procedure only if you change your device.

To make your device selection the program default for all work sessions, use the *Global, Keep* command.



THE SLASH COMMANDS

On/Off Toggles



If the current toggle setting is *on*, the option is shown in inverse video on the prompt line. The example above shows the default settings.

F The *Formula* option alternates the spreadsheet between displaying the cell contents and the cell values. The cell contents is the literal data entered into the cell, such as a formula or a number. The cell value is the result of evaluating the cell content, such as the number produced by evaluating the formula. The default is *off*.

- When F is off, Formula cells display the cell values.
- When F is on, Formula cells display the cell contents.

" The **"** option turns on/off the requirement to use the leading double quote for a text entry. The default is *off*.

- When **"** is off, you are in the *text entry mode* and the leading **"** is optional. SuperCalc3 evaluates your entry and, if it is not a formula or a command, supplies the leading **"** in the cell contents and displays the message TEXT in the lower right corner of your screen.

Note:

If you want to enter a number, formula, or cell address as text, you must precede the entry with **"**. The leading **"** is also required if the text contains a **?** or begins with **=**, **!**, **'**, **;**, **"**, **&** or **/**.



- When `""` is on, you are operating in the *formula entry mode* and the leading `""` is required for text entries. SuperCalc3 evaluates your entry and, if it is not text or repeating text, checks for proper formula format. If the entry is not a formula, the message **FORMULA ERROR** appears in the lower right corner of your screen.
- N** The *Next* option turns on/off the spreadsheet cursor *auto-advance*. The default is *on*.
- When *Next* is on, the spreadsheet cursor advances in the current direction after an entry of data with a **[RETURN]**. The current direction displays in column one of the current cell status line. It is determined by the direction of the prior cursor move.
 - When *Next* is off, the spreadsheet cursor does not advance automatically. The cursor direction indicator is absent from the current cell status line.
- B** The *Border* option turns on/off the display of the column/row borders. The border display is row number along the left side and the column letter along the top of the spreadsheet. The default is *on*.
- When the border is on, it is displayed on the console.
 - When the border is off, it does not display on the console.

See *Output,...Setup* for turning the border on/off for printing only.



THE SLASH COMMANDS

T The *Tab* option turns on/off the cursor lockout option. In the *Tab* mode, the cursor automatically jumps to only non-blank, non-protected cells. The *Tab* option is useful to speed data entry by skipping designated cells. The default is *off*.

- When the *tab* option is off, the spreadsheet cursor may be positioned in any cell.
- When the *tab* option is on, the spreadsheet cursor keys can position the cursor in non-blank, non-protected cells only.

Note: The *GoTo* (=) command can position the cursor at any cell, even when the *Tab* option is on.

P The *Protect* option temporarily turns on/off the shield of protection that has been placed on cells using the */Protect* command. The default is *on*.

- When *Global,Protect* is on, protection placed with the */Protect* command is honored.
- When *Global,Protect* is off, the shield of protection is temporarily turned off.

Note: If you turn the protection off, be sure to repeat the *Global,Protect* command when you are through editing, deleting, etc. The *Global,Protect* shield of protection is again honored.



Calculation Options



Calculation options

The current calculation settings are shown in inverse video on the prompt line. The example above shows the defaults.

- R/C** Specifying *Row* or *Column* determines the order that SuperCalc3 calculates your spreadsheet. All calculations begin with cell A1. The default is *Row* order calculation.
- R** *Row* calculates each cell across a row from left to right before moving down to the next row.
- C** *Column* calculates cells down a column from top to bottom before moving right to the next column.
- M/A** *Manual* or *Auto* lets you determine how SuperCalc3 recalculates your spreadsheet. The default is *Auto*.
- M** *Manual* requires you to use the (!) command to force recalculation.
- A** *Auto* automatically recalculates the entire spreadsheet each time new data are entered or after an *Arrange*, *Blank*, *Copy*, *Delete*, **Insert**, **Load**, **Move** or *Replicate* command is executed.

Notice that since the *Manual/Auto* status is saved with the spreadsheet on disk, the calculation after a *Load*, *All* depends on the state in which the spreadsheet was saved.



THE SLASH COMMANDS

Special Considerations:

1. The *Manual* option is especially helpful when you have a large spreadsheet and are entering a significant amount of data, as you do not have to wait for recalculation each time. On the other hand, *Auto* recalculation always keeps your spreadsheet up-to-date.
2. When the *Tab*, *Protect*, and *Next* options are on, the cursor moves automatically to the next unprotected, non-blank cell after data entry. This is especially useful in *eXecute* command files.
3. Updates to the graph (and to the spreadsheet) will only be done when you press the recalculate key (I) if you are in /G,M mode. Otherwise, updates to both the spreadsheet and graph are automatic.



Insert

Synopsis:

Inserts an empty row range or column range and adjusts formulas.

`/ Insert` —

<code>Row</code>	—	row range (to insert one or more empty rows) (↵)
<code>Column</code>	—	column range (to insert one or more empty columns) (↵)

Command Description:

The *Insert* command adds a row range or column range and adjusts the formulas for the remainder of the spreadsheet. Columns move to the right of the inserted columns and rows move down from the inserted rows. If there are any cells that would be pushed past the last row or column of the physical spreadsheet, SuperCalc3 won't allow the insert. You must first delete an appropriate number of rows or columns.

Examples:

Insert a row between rows 4 & 5:

`/Insert,Row,5 [RETURN]`



THE SLASH COMMANDS

Insert 3 columns between columns D & E:

/Insert,Column,E:G [RETURN]

Special Considerations:

1. There is no provision to not adjust formulas.



Load

Synopsis:

Load the spreadsheet contents, values and format settings from a disk file. You may load all or part of the spreadsheet at a location you specify. Options give a choice of formula adjustment or values only or consolidation arithmetic. You may also load graph descriptions from another SuperCalc3 file into the current spreadsheet.

/ Load	[filename , ESC for current name , ⌘ for Directory options	[All Part — from range , — to upper/left cell Consolidate ★ — from graph range , — to first graph number (1-9)	[⌘ adjust , options	[No adjust Ask for adjust Values only + - ★ /

Command Description:

The *Load* command reads the cell contents, cell values and format settings from a disk file into the current spreadsheet. You may load *All* or *Part* of a spreadsheet. You may also load the graph descriptions (formats, appearance, etc.) from another spreadsheet file into the current spreadsheet.

Enter the name of the file you wish to *Load* preceded by the disk and sub-directory designation, if necessary. Otherwise, the current data drive-directory is assumed. SuperCalc3 looks for a file with the .CAL extension unless you specify otherwise.



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If the **[Esc]** key is pressed in response to the filename prompt, the name of the last file *Loaded* is placed on the entry line. If a **[RETURN]** is entered, you see the SuperCalc3 Directory Options menu, which allows you to examine the directory of files on your current data disk.

When you load *All* of the spreadsheet it loads exactly in the form that it was saved.

The last occupied row and column of your specified spreadsheet file cannot be greater than the current spreadsheet boundary.

You may use the *Part* option if your spreadsheet file (imported from another program) is larger than 63 columns by 254 rows.

Consolidation of Spreadsheets

When you select the *Consolidate* option, corresponding cells of the disk file are combined with the value of the spreadsheet file and the result replaces the contents of the spreadsheet cell.

Graphs from the second and subsequent consolidated files are not loaded unless you specifically load them with another *Load,filename,* graph number* command.

To *Load* a partial spreadsheet, first specify *Part*, then specify the source cell range. The destination cell becomes the upper left corner of the region to be loaded. SuperCalc3 assumes that the range of the destination will be the same size as the source range. With a partial load, cell contents and entry level formats only are loaded. All other commands on file for the partially loaded spreadsheet are ignored.

The options allow you to specify *Formula Adjustment* or *Consolidation* arithmetic for the destination range. A **[RETURN]** provides the default option, formula adjustment. To select another option, enter a comma (,) followed by the option.



Formula Adjustment Options

[RETURN] *Formula Adjust* — The default selection copies and adjusts formulas to their new location.

N *No Adjust* — Copies cell contents literally with no formula adjustment.

A *Ask for Adjust* — Prompts for formula adjustment for each cell copied. The command line displays the formula and the prompt line displays the source cells. SuperCalc3 prompts for each cell reference adjustment.

V *Values* — Copies cell values only as numeric constants. Formulas do not copy. Dates change to their DVAL function value.

Consolidation Arithmetic Options

- +** *Adds* each source cell value to the corresponding destination cell value and enters the sum into the destination cell as a numeric constant. This is a good way to do currency conversion.
- *Subtracts* each source cell value from the corresponding destination cell value and enters the difference into the destination cell as a numeric constant.
- *** *Multiplies* each source cell value with the corresponding destination cell value and enters the product into the destination cell as a numeric constant. This is a good way to do currency conversion.
- /** *Divides* each destination cell value by the corresponding source cell value and enters the quotient into the destination cell as a numeric constant.



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The effect of a consolidation arithmetic operation depends upon the contents of the corresponding spreadsheet and disk file cells. There are four cases to consider.

- A blank spreadsheet cell and a blank disk file cell result in a consolidated blank cell.
- A blank spreadsheet cell and a non-blank disk file cell result in a consolidated blank cell.
- A non-blank spreadsheet cell and a blank disk file cell result in a consolidated cell that is unchanged from the formula spreadsheet cell.
- A numeric spreadsheet cell and a numeric disk file cell result in a consolidated cell that is the result of performing the selected operation.

Note: The following types of cells are not affected:

Text cells
Protected Formula cells
Date cells
Textual Value cells
N/A cells
ERROR cells

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The following table summarizes:

		DISK	
		Blank	Formula*
SPREADSHEET	Blank	Blank	Blank
	Formula*	Spreadsheet Content	Spreadsheet + Disk File Value

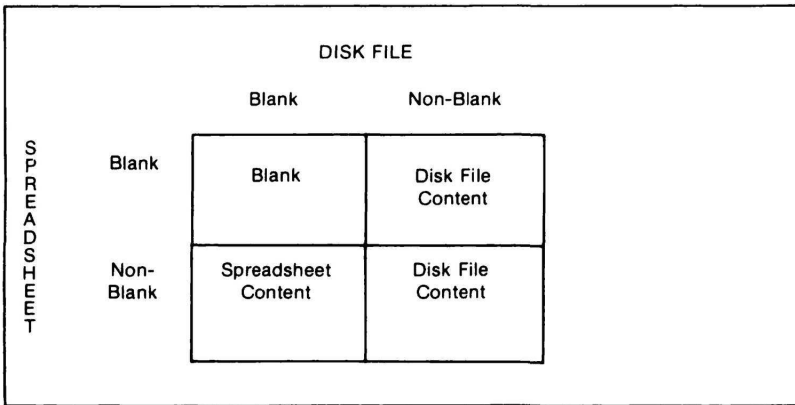
You can *Load* a disk file on top of a spreadsheet file. Corresponding cells of the disk file replace those of the current spreadsheet file. There are four cases to consider.

- A blank spreadsheet cell and a blank disk file cell result in a blank cell.
- A blank spreadsheet cell and a non-blank disk file cell result in the contents of the disk file cell.
- A non-blank spreadsheet cell and a blank disk file cell result in the contents of the non-blank spreadsheet cell.
- A non-blank spreadsheet cell and a non-blank disk file cell result in the contents of the non-blank disk file cell.



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The following diagram illustrates each case:



Examples:

To load graph descriptions 1 through 4 from a disk file to the current spreadsheet, starting in graph description number 5:

/Load,QUARTER,*1:4,5

To load an entire file from the current data disk:

/Load,QUARTER,All

To load an entire file from a disk named /CALC:

/Load,/CALC/filename,All

To load an entire file from a sub-directory named REPORTS in this path: /LETTERS/REPORTS (in this case the current data directory may be on a *different* path):

/Load,/LETTERS/REPORTS/filename,All

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To load part of a file from the current data disk:

/Load,filename,Part,F4:F25,A4,Values

To replace a section of the current contents of the spreadsheet with that of a disk file:

/Load,filename,Part,C3:F20,C3 [RETURN]

To sum the values of the current spreadsheet with those of a disk file:

/Load,filename,Consolidate

To sum the values of a section of the current spreadsheet with those of a disk file:

/Load,filename,Part,C3:F20,C3, +

Note: This method is a good way to link spreadsheets together if one large spreadsheet is too large to fit in memory. For example, load the first spreadsheet, then delete everything but its *bottom line*. Then load the next spreadsheet, which references the first bottom line for its calculations.

Special Considerations:

1. Protected cells in the destination area will remain unaffected by a *Load* command.



THE SLASH COMMANDS

2. In the following examples, 8 is specified as the first graph number in the set of graph descriptions copied to the current spreadsheet:

/Load,filename,*3:4,8 will succeed.

Graph descriptions 3 and 4 load as graph numbers 8 and 9.

/Load,filename,*4:6,8 will partially succeed.

Graph descriptions 4 and 5 load as graph numbers 8 and 9. Graph description number 6 cannot be loaded. The maximum is nine graphs per spreadsheet.

3. Loading a graph description will overwrite, without notification, a description with the same graph number in the current spreadsheet.



Move

Synopsis:

Moves a row range or column range to a new location and adjusts the formulas.

/ Move —
{

Row — from row range , — to row number (will be top row if move is up, bot. row if move is down) (↕)
Column — from col. range , — to col. letter (will be left col. if move is left, right col. if move is right) (↔)

}

Command Description:

The *Move* command transfers the column range or row range to a new location. The formulas adjust without destroying any data or formatting. You move a column range left or right. The columns between the old and new locations move in the opposite direction to fill in the space. You move a row range up or down. The rows between the new and old location move in the opposite direction to fill in the space.

Formulas on the spreadsheet adjust as necessary to preserve references to cell contents at the new locations.

Examples:

Move row 5 between rows 11 and 12:

/Move,Row,5,12 [RETURN]

Move columns C to E between columns I and J:

/Move,Column,C:E,J [RETURN]

Note:

There is no provision to *Move* without formula adjustment.

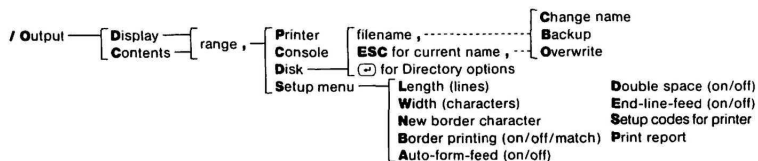


THE SLASH COMMANDS

Output

Synopsis:

Writes all or part of the spreadsheet to the printer, the console screen, or a disk file. Options allow writing the displayed information or the cell contents listing.



Command Description:

The *Output* command writes all or part of the spreadsheet to the printer, the console screen, or a text file on disk. If you write your report to a disk file, you can use a utility program such as *Sideways* to rotate your report by 90 degrees when it is printed. From disk you can also use a word processing program to edit or reformat your report before printing. You can then include SuperCalc3 reports in other documents as you wish.

Your first option selects the mode of the output.

- D** The *Display* option outputs the spreadsheet as it displays on the monitor, in either value or formula display mode.

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- C** The *Contents* option lists the cell contents one per line. It prints the information you would find on the status line for each cell: entry level display format, protection status, and the cell content.

Your next option selects the range to output. Specify a cell, partial row, partial column, block or *All* for the entire spreadsheet.

Your next set of options lets you select the output device — printer, console, or disk — or lets you use the *Setup* menu to change print defaults before printing.

- P** *Printer* sends your report to the printer. The default page width is 80 and the page length is 66. If your spreadsheet exceeds the line length, SuperCalc3 prints as many spreadsheet columns as it can on one page and prints the excess columns on another page. Use the *Setup* option below to alter the defaults before printing. Mouse text characters are printed as blank spaces.

- C** The *Console* option displays the output on your console (monitor).

- D** *Disk* sends your report to a disk file on the current data drive-directory, or the one you specify. The report is saved on the disk in the same form as it appears on your console or prints on the printer. Your report can then be printed using the *Sideways* utility. This *Output to Disk* command is also used to save a file in a format you can edit with word processing programs. (See *Examples*, below, for more information about inserting spreadsheets into documents). SuperCalc3 gives the filename a .PRN suffix unless you enter a different suffix. Mouse text characters are retained.



THE SLASH COMMANDS

If you press **[Esc]** at the filename prompt, the name (without an suffix) of the last file Loaded is placed on the entry line. If you press **[RETURN]**, you see the Directory Options menu, which gives you the opportunity to examine the directory of files on your disk.

If you specify the name of an existing file, SuperCalc3 gives you the following options.

- C** *Change Name*. You may edit or change the name of the file here.
- B** *Backup* changes the suffix of the existing file to suffix. Your old file remains unchanged and is available as a backup. If a .BAK file already exists, it is deleted permanently from the disk prior to the renaming.
- O** *Overwrite* erases the old file from the disk and creates a new file of the same name containing your current spreadsheet.

A .PRN text file may be used in conjunction with other programs such as word processors. You can enhance the report, include it in your documents and use the full editing capability of your text editor.

Note:

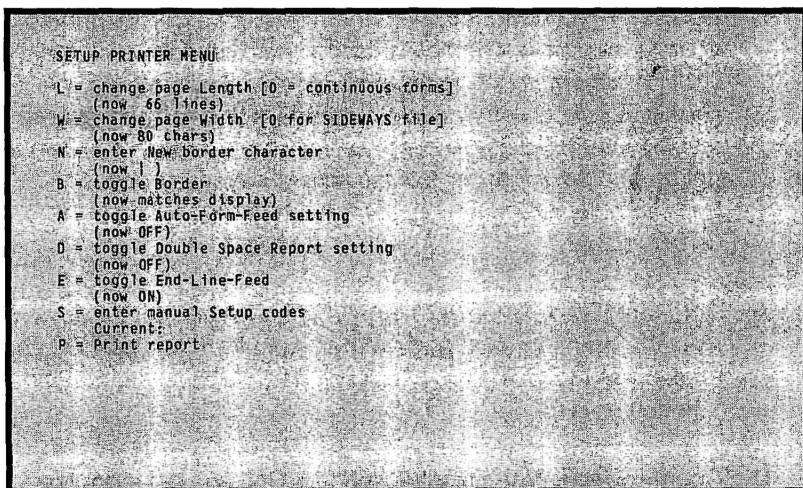
The .PRN file produced is not the same as the .CAL file produced by the *Save* command. The .PRN file is an ASCII file that can be edited using a word processor or text editor.

- S** *Setup* gives you access to the default printing specifications that appear in the sample Setup menu. You may change any or all of these specifications for the current work session. Use this option before printing to change such things as print 80 characters and compressed format. If you wish to save the changed specifications for future work sessions, use the *Global, Keep* command.

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- L** *Length* lets you specify the maximum number of lines per page. The default is 66. You may select from 0-255 lines. If you specify zero, the report prints continuously with no top or bottom margins.
- W** *Width* lets you specify the maximum number of characters per line. The default is 80. You may select from 1-255 characters. If your spreadsheet exceeds the current width, SuperCalc3 prints as many spreadsheet columns as it can on one page and prints the excess columns on another page.



Screen 3-8: Setup Printer Options



THE SLASH COMMANDS

- N** *New* lets you type in a new border character. This is useful if your printer cannot print the vertical bar (|) character. The colon (:) is a good alternate border character.

After the page Length, Width, and New border character, you have a group of *toggles*. Note that as soon as you enter the designated character at each of the toggles, the setting immediately switches from ON to OFF, or OFF to ON (or to "now matches display" in the case of *Border*).

- B** *Border* lets you determine whether you want a border printed with your spreadsheet. The default is *matches display* which makes your printing match the border condition set with the *Global, Border* command for your current spreadsheet screen display. When *Setup, Border* is OFF, the spreadsheet border will not be printed, regardless of the screen display. When *Setup, Border* is ON, the border is printed, regardless of the screen display.
- A** *Auto-form-feed*. When auto form feed is ON, the printer does not stop after printing each page. When Auto-form-feed is OFF, you must press the space bar after each page to continue printing. The default is OFF.
- D** *Double space*. When Double space is ON, you get a double spaced report. When Double space is OFF, you get a single spaced report. The default is OFF. If your printer double spaces even though this setting is OFF, change the End-Line-Feed setting to OFF.



- E** *End-line-feed.* When End-line-feed is ON, SuperCalc3 sends a line feed, in addition to a carriage return, at the end of each line. On some printers this gives you a double space after each line. When End-line-feed is OFF, no line feed is sent — the program sends a carriage return only. The default is ON.

After the toggle options, you have an option that deals with printer control codes.

- S** *Setup printer control codes* lets you enter instructions (initialization string) to your printer such as compressed type or bold face characters. See your printer manual for a list of printer functions and printer control codes.

When you type **S** the cursor jumps to the “current” line. To clear the current line, enter **S** [Return]. To modify the current codes, use **[DELETE]** (destructive backspace), then type in new codes.

The maximum number of characters is 16. You may enter either the control characters or their decimal equivalent values. For example, to put an Epson MX80 printer into compressed print mode, enter a **[Ctrl O]** and see an O displayed in inverse video. See Special Considerations for more information. When you complete your instructions press **[RETURN]**.

When entering printer control codes, the following keys are available for editing:

[Delete]	delete prior character (destructive backspace)
[RETURN]	accept control code sequence
[Apple 2]	cancel and return to previous control codes.



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SuperCalc3 is shipped without default printer control codes since they are different for each printer and user. When you use *Global,Keep* you are establishing default print controls for SuperCalc3 to automatically use with each printing. The defaults are displayed each time you go to the Setup menu.

To exit the menu enter one of the following:

P — *Print* returns you to the previous prompts (such as */Output,Display,ALL*). Then select *Printer* to send your report to the printer using the specifications you have set.

[Apple 2] to return to the spreadsheet.

[It arrow] to back out of the *Setup option* and return to the prompt line to choose another *Output* option.

Examples:

Output display report to the printer:

/Output,Display,ALL,Printer

Output content report of column B to printer, changing to print on continuous forms (the original program default):

/Output,Contents,B,Setup,Length,0[RETURN],Print

Then select **Printer**.

Change width, then output to a disk file in a format that can be edited by editing programs.

/Output,Display,A1:J23,etup,Width,65[RETURN]

[It arrow]Disk,WORK1[RETURN]



To send an initialization string to your printer to perform a special function using **[Ctrl O]**:

**/Output,Display,ALL,Setup,S,
[Ctrl O][RETURN]Width,233[RETURN]Print**
Then select **Printer**.

This command line sets some printers to print compressed type, and increases the maximum number of characters per line, then prints.

Special Considerations:

1. See *eXecute* for .XQT files that can be created on a spreadsheet, then saved using the *Output Display to Disk* command.
2. Text cell entries that extend past the last column specified (or the last column that contains an entry if *All* is specified) are *clipped* to the end of the last column specified.
3. Text that spills-over into other cells will be truncated when *Output to Disk* — unless the Last column/row cell is even with or beyond the last column and row of text.
4. Some printers require End-Line-Feed toggled *OFF* at the Setup Printer menu. Otherwise, the printer double spaces - even though Double Space is toggled *OFF* at the Setup Printer menu.
5. There is no way to Output a graph description with the *Output* command. See the *View* command section for instructions on printing or plotting a graph.



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
6. Program default settings are generally correct for the printer selected at the Global, Graphics, Device menu. If printer operations are not satisfactory, check the settings at the Global, Interface menu and the Output, Setup menu.
7. It is good practice to *Save* your spreadsheet before using the *Output* command.
8. See Chapter 1 for guidelines on configuring the printer for your program.



Protect

Synopsis:

Protects the cell contents and formatting of a cell range from change.

`/Protect` — range 
for current cell 

Command Description:

The *Protect* command prevents the cell contents and display formats of non-blank cells in a cell range from change. Data may not be entered, edited or the format changed for cells that are protected. Graph descriptions may not be protected.

Omit the range to protect the current cell singularly.

Examples:

Protect a specified cell:

`/Protect,C3 [RETURN]`

Protect a partial column:

`/Protect,C3:C9 [RETURN]`

Protect a partial row:

`/Protect,C3:G3 [RETURN]`



THE SLASH COMMANDS

Protect a block:

/Protect,C3:G9 [RETURN]

Protect the current cell:

/Protect [RETURN]

Protect entire spreadsheet:

/Protect,ALL[RETURN]

Special Considerations:

1. You cannot *Copy*, *Replicate* or *Load* onto protected cells. The commands operate normally on surrounding cells but leave the protected cells unchanged.
2. *Delete* and *Blank* do not work on protected cells, or on rows or columns containing protected cells.
3. *Zap* overrides protected cells to delete the entire spreadsheet. *Protect* has no effect on *Zap*.
4. There is no error if you attempt to *Protect* cells that are already protected.
5. See the *Unprotect* command which is used to reverse the protection.
6. See the *Global,Protect* command which is used to temporarily toggle the shield of protection on and off.



Quit

Synopsis:

Exits from SuperCalc3 to the operating system.

/ Quit	<div style="display: inline-block; vertical-align: top;"> <p>Yes to exit from program (does not save current work)</p> <p>No to cancel this command</p> <p>To quit & load any program</p> </div> <div style="display: inline-block; vertical-align: top; margin-left: 10px;"> <p>program filename <input type="checkbox"/></p> <p><input type="checkbox"/> for Directory options</p> </div>
--------	---

Command Description:

The *Quit* command exits SuperCalc3, returning you to the operating system.

Yes returns you to the operating system. The spreadsheet is erased from the computer's memory. *Save* it before *Quit* if you want to keep it.

No cancels the *Quit* command and returns you to SuperCalc3.

To allows you to go directly from SuperCalc3 to any other program. Specify the name of the program file you want to run (precede the name with a disk name and sub-directory, if necessary). SuperCalc3 exits and the program you name begins. If you press **[Return]** before entering the program name, you see the Directory Options menu. From the menu you can examine the directory of files on your designated data drive.

Special Considerations:

1. You can also cancel the *Quit* command using **[Apple 2]**. This has the same result as a *No* reply.



Replicate

Synopsis:

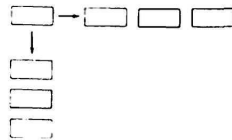
Makes a one-to-many copy of a cell to a group of cells, a partial column to a group of partial columns, or a partial row to a group of partial rows. Options give a choice of formula adjustment, values only, or consolidation arithmetic.

/ Replicate — [from cell, — to cell/partial row/partial column —] — [adjust] — [No adjust
Ask for adjust
Values only
+ - * /]
[from partial row, — to left partial column —] — , options —
[from partial column, — to top partial row —]

Command Description:

The *Replicate* command duplicates a one-to-many copy of the source into a destination that is equal to or larger than the source. The source may be a cell, partial row or partial column but not a block. *Replicate* can make the following duplications:

- A single cell into a partial column or partial row.



Replicate a single cell

Illustration 3-1: Replicate a partial column

- A partial column into a group of partial columns. Specify the destination range by the left and right cells on the top row of the destination group.

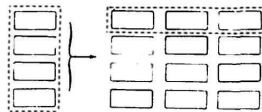


Illustration 3-2: Replicate a single cell



Replicate a partial column

- A partial row into a group of partial rows. Specify the destination range by the upper and lower cells for the left column of the destination group.

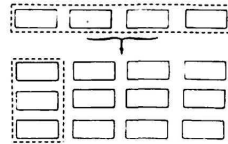


Illustration 3-3: Replicate a partial row

Replicate a partial row

The options allow you to specify *Formula Adjustment* or *Consolidation* arithmetic for the destination range. A **[Return]** provides the default option, formula adjustment. To select another option, enter a comma (,) and the desired option.

[RETURN] *Formula Adjust* — The default selection copies and adjusts formulas to their new location.

N *No Adjust* — Copies cell contents literally with no formula adjustment.

A *Ask for Adjust* — Prompts for formula adjustment for each cell copied. The command line displays the formula and the prompt line displays the source cells. SuperCalc3 prompts for each cell reference adjustment.

V *Values* — Copies cell values only as numeric constants. Formulas are evaluated and their values only (not the actual formulas) are copied. Dates change to their DVAL function value.

+ *Adds* each source cell value to the corresponding destination cell value and enters the sum into the destination cell as a numeric constant.



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- *Subtracts* each source cell value from the corresponding destination cell value and enters the difference into the destination cell as a numeric constant.
- * *Multiplies* each source cell value with the corresponding destination cell value and enters the product into the destination cell as a numeric constant.
- / *Divides* each destination cell value by the corresponding source cell value and enters the quotient into the destination cell as a numeric constant.

Examples:

Replicate a cell into a partial column:

/Replicate,B12,E3:E8 [RETURN]

Replicate a cell into a partial row:

/Replicate,B12,E3:J3 [RETURN]

Replicate a partial column into a group of partial columns:

/Replicate,B3:B7,D3:J3 [RETURN]

In this example, the partial column is five cells deep. The result will be a block of cells repeating that partial column seven times. The top of that block is on row 3.

Replicate a partial row into a group of partial rows:

/Replicate,B3:F3,G3:G5 [RETURN]



The partial row here is five cells across. The result will be a block of cells repeating the partial row three times. The left side of that block is column G.

Replicate without adjustment:

/Replicate,B12,E3:E8,N

Replicate, ask for individual choice of adjustment:

/Replicate,B12,E3:J3,A

Special Considerations:

1. Using *Replicate* to make a one-to-one copy provides results identical to the *Copy* command.
2. *Replicate* can make multiple copies of a cell, row or column. *Copy* makes only single copies of a cell, row, column or block. *Copy* can do one thing *Replicate* cannot do. *Copy* can duplicate a block.
3. The maximum length of a formula is 116 characters. When you plan to *Replicate* a formula down rows be sure to leave space for more characters. For example, a formula in row 4 containing B4 when replicated to row 254 with adjustment will change the B4 to B254 which increases the formula length by 2 characters. Characters that extend beyond 116 will be dropped by the program.



THE SLASH COMMANDS

Save

Synopsis:

Writes the spreadsheet on a disk file. Options give a choice of saving the entire spreadsheet or values only.

/ Save — [filename ,] [Change name — [All
Backup — Values only
Overwrite — Part — [All — range (→)
Values only —]
(→) for Directory options

Command Description:

The *Save* command writes the spreadsheet, including graph descriptions, onto a disk file while retaining it in computer memory. You may write the entire spreadsheet or only a portion of it. You may save the cell contents or only the values. You *may not* save graph descriptions separate from the associated spreadsheet.

SuperCalc3 saves the file on the current data disk unless you specify another. If the **[Esc]** key is pressed in response to the filename prompt, the name of the last file *Loaded* is placed on the entry line. If a **[RETURN]** is entered, SuperCalc3 allows you to examine the files on your current data disk.

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If you specify the name of an existing file, the program gives you the following options:

- C** *Change Name*. You may edit or change the name of the file here.
- B** *Backup* changes the suffix of the existing file to *Your old file remains unchanged and is available as a backup. If a prior to the renaming.*

Note:

To load a .BAK file, you must specify the .BAK suffix.

- O** *Overwrite* erases the old file from the disk and creates a new file of the same name containing your current spreadsheet. Use with caution!

You then specify the part of the file to save.

- A** *All* saves the entire file on disk. The cell contents, cell values and display formats are saved. Also, the global toggle and calculation options, title locking, window splitting and current cell location are saved.
- V** *Values* — The cell Values are saved as numeric constants. Display formats are also saved. The cell contents are not saved.
- P** *Part* saves the portion of the spreadsheet you specify.
 - A** *All* saves all the cell data for the partial spreadsheet.
 - V** *Values* saves only the values for the partial spreadsheet. Dates are stored as their DVAL value.

SuperCalc3 then prompts for the cell range.



THE SLASH COMMANDS

Examples:

Save the entire file:

/Save,/DATA/WORK5,All

Save the values of the spreadsheet on a disk named /DATA:

/Save,/DATA/WORK5,Values

Save the entire file to a sub-directory named /CALC:

/Save,/CALC/filename,All

Save the entire file to a sub-directory named /REPORTS in this path:
/DATA2/LETTERS/REPORTS (in this case the current data directory might be on a different path):

/Save,/DATA2/LETTERS/REPORTS/filename,All

Special Considerations:

1. For the *Backup* and *Overwrite* options, SuperCalc3 deletes an existing file permanently from the disk, not just from the disk directory. Recovery is not possible, even with a disk utility program.
2. *Save* writes the file in binary format on the disk. That is, the file is readable by SuperCalc3, but not by word processing programs. Many word processing programs *can* edit a spreadsheet saved with the *Output, Display to Disk* command.
3. Use the Sorcim program *SuperData Interchange* to convert a .CAL file to a .CSV file. The .CSV file can be edited with some text editing and word processing programs. It can also be used for any other applications program that uses comma separated values, such as a BASIC program.



Title

Synopsis:

Locks columns, rows, or both into place on the display window.

/ Title	<div style="border-left: 1px solid black; padding-left: 5px;"> Horizontal lock Vertical lock Both Clear </div>

Command Description:

The *Title* command locks columns/rows on the display window.

- A locked column scrolls vertically but not horizontally.
- A locked row scrolls horizontally but not vertically.
- A combination column/row lock does not scroll.

The *Title* options are:

- H** *Horizontal* locks the current row and all rows above it.
- V** *Vertical* locks the current column and all columns to the left of it.
- B** *Both* locks the current row and column, and all rows above and columns to the left.
- C** *Clears* the title lock.

Specifying a new title lock replaces a prior one.



THE SLASH COMMANDS

The cursor commands cannot move the spreadsheet cursor into a title lock area. Use the *GoTo* (=) command to do this.

Special Considerations:



1. Any subsequent command that makes a title lock impossible to display, such as a *Format* or *Window* command causes SuperCalc3 to clear the title lock. A message displays on the current cell status line.
2. The title lock display is stored on a disk file. It does not transfer to the output such as to the printer or to a .PRN file. To print titles on other than the first page, you must move (or copy) the title column/rows to the desired location prior to printing. You will most likely need to print a rough draft to determine the proper column/row.
3. An alternate method to print titles for other than the adjacent column to the title lock is to format *intervening* columns to a column width of zero, then print the spreadsheet.



Unprotect

Synopsis:

Removes protection from a cell range.

/Unprotect [range] 
 for current cell

Command Description:

The *Unprotect* command removes protection from a range. There is no error if you attempt to unprotect cells that are not protected.

Examples:

To remove protection from a cell:

/Unprotect,C3 [RETURN]

To remove protection from a partial column:

/Unprotect,C3:C9 [RETURN]

To remove protection from a partial row:

/Unprotect,C3:G3 [RETURN]

To remove protection from a block of cells:

/Unprotect,C3:G9 [RETURN]



THE SLASH COMMANDS

Special Considerations:

1. See the *Protect* command.
2. You can use the *Global,Protect* command to temporarily toggle all protection on and off. See *Global,Protect*.



View

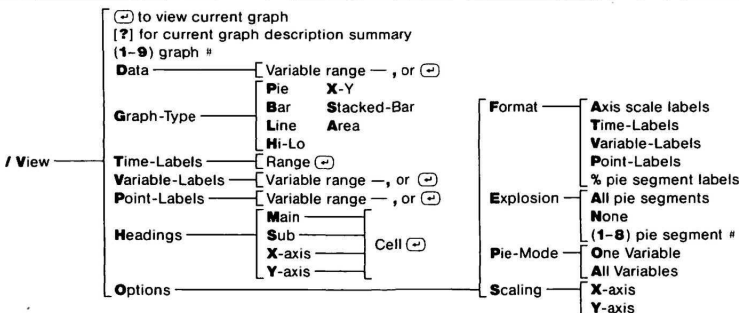
Synopsis

The *View* command lets you see your spreadsheet data in graphic form using Pie, Bar, Stacked-Bar, Line, Hi-Lo, X-Y, or Area graphs. SuperCalc3 has defaults for most *View* options — you are only *required* to specify a Data Variable range.

You can specify graph data as a block, or as 1 to 10 individual Data Variable ranges (partial row or column ranges). You can then *View* the graph on your monitor or plot it on a plotting device.

Up to 9 graphs can be described and saved with each spreadsheet. Through the *Load* command, you can also include graphs saved with other SuperCalc3 spreadsheets into the current spreadsheet. You can specify up to eight different typefaces (fonts) for heading and labels to make your graph presentation quality.

SuperCalc3 sizes the various parts of your graph to optimize the presentation for both your screen and plotting device. For example, some headings print vertically while others print horizontally depending on their length. The graph itself changes in size depending on the amount of textual material.



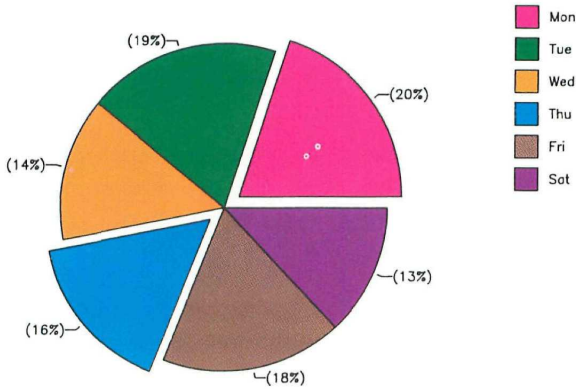


Illustration 3-4: One-Dimensional Graph

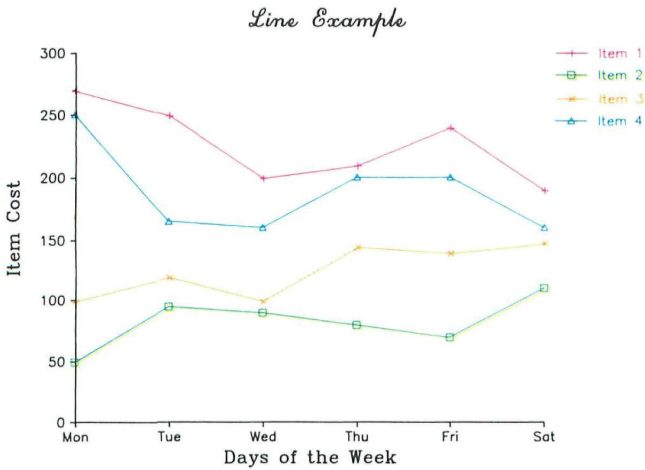


Illustration 3-5: Two-Dimensional Graph

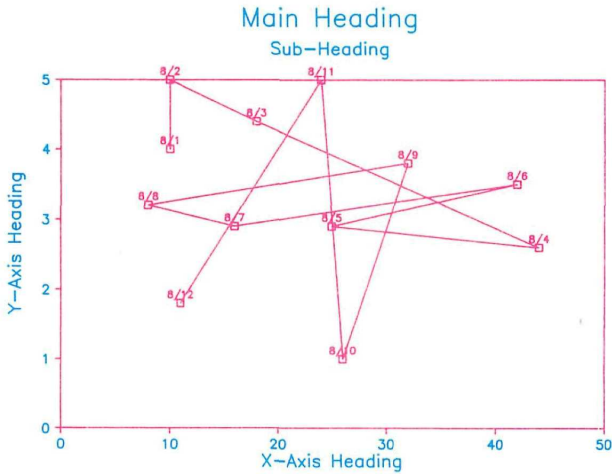


Illustration 3-6: Three-Dimensional Graph

SuperCalc3 produces three categories of graphs.

- One-dimensional graph — Pie.
- Two-dimensional graph — Bar, Stacked-Bar, Line, Hi-Lo and Area.
- Three-dimensional graph — X-Y.

Components of a graph:

Main Heading

The first and largest title, centered at the top of your graph. Main headings do not appear larger than other text on the console.

Sub-Heading

The second title of your graph is centered directly below the main heading, and is smaller than the main heading.



THE SLASH COMMANDS

X-Axis Heading

Text at the bottom of your graph, below the Time-Labels.

Y-Axis Heading

Text along the left side of your graph.

Y-Axis Labels

Numeric labels that identify each *tick* along the Y-axis. They are included by default unless you turn them off. For maximum flexibility, these labels can be scaled through the normal SuperCalc3 format options (for example, to show 43,000 or 43).

Time-Labels

Numbers or text as labels along the X-axis of a *Bar*, *Stacked-Bar*, *Line*, *Area*, or *Hi-Lo* graph. They appear as a legend on the side of a pie graph. Because the X-axis commonly represents time (for example months or quarters) in bar graphs, line graphs, and area graphs, and because it is non-numeric (except in *X-Y* graphs), we refer to these as Time-Labels.

Variable-Labels

Labels that identify the Variables in a graph through matching color or hatch patterns. In all but pie graphs, these labels are often thought of as a legend, and they appear along the right side of a graph — one for each Variable defined.



Point-Labels

Numbers or text that identify the value of each variable plotted: point, line, bar, "stack" of a stacked-bar, or segment of a pie. (Point-Labels make it unnecessary to use a ruler or a grid line to see where a bar aligns with the Y-axis). Point-Labels may be assigned to Variables (B-J) for X-Y graphs.

Ticks

Small lines that indicate units of values of the Y-axis (and of the X-axis in an X-Y graph), and points (for example, time periods) along the X-axis. Ticks do not apply to Pie graphs.

Command Description:

The *View* command produces a graph on the console, plotter or printer when the /GRAPH disk is on-line. For a simple graph, you only need to specify the Data Variable range (the cells containing the numeric data you want to graph). All of the other graph descriptions have default values, and are optional. You can use the defaults to quickly visualize your data as a *Bar* graph that has no textual components. Labels (Variable, Time, or Point) and Headings are options you can add to the graph.

The *View* command differs from most other slash commands in that once you have entered */View*, selecting and finishing any other option returns you to the *View* prompt rather than the idle prompt (1>). This allows you to keep adding to the description of the graph without having to re-type */View*.



THE SLASH COMMANDS

Viewing a Graph

When you have finished the graph definition and want to see your graph, insert your working copy of the /GRAPH disk (if it isn't already on-line), then press **[Return]** at the *View* prompt. All of the *View* options are saved with the spreadsheet disk file.

If you want to see a graph that is completely described (for example, if you have changed some spreadsheet data in a *what if*), you can simply type **/View [Return]** (or just press **[Apple 0]** except when entering data, text, or filename). At any point in the *View* process, you can return to **/View** and produce a graph with one or more **[RETURN]**s. As with all other SuperCalc3 commands, you can cancel the *View* command with **[Apple 2]**, and you can use the in-line editor to correct typing mistakes.

Color vs. Black & White

If you change the Monitor Display setting in SuperCalc3 from the Black & White default to Color (at the Global, Graphics, Options menu), graph labels might truncate and graph size is compressed when graphs are viewed on-screen. As a general rule, abbreviate graph labels, or keep them as short as possible.

The default Black & White setting provides higher graph resolution on-screen, whether you have a monochrome or a color monitor. With a Black & White setting, graphs and labels are either not compressed or truncated at all, or minimally affected. Graph fill is crosshatched on-screen, rather than displayed in colors.

Note that the Color setting for Monitor Display does not cause graphs or labels to compress or truncate at your plotter or graphics printer.



Plotting a Graph

To plot your graph, just press **[Apple 9]**. The plotting process begins if the entry line is clear, or if the current entry is a command (but not if you see a filename prompt).

If plotting does not begin, see if the program is prompting you to insert a plotter pen. If not, clear the entry line and try again. If that fails, check your selection at the *Global,Graphics,Device* selection menu. If your selection is correct, then check the settings at the *Global,Graphics,Interface* menu: The device settings displayed must match the switch and port settings on your plotter or graphics printer.

Entering Graph Options

When you type **/View**, the prompt line displays:

```
#,?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)
```

Choosing a Graph number

The first option lets you choose a graph number from 1 through 9. If you omit the graph number by selecting one of the other options from the prompt line, SuperCalc3 assumes that you want to use the last accessed graph (or graph #1 if none has yet been defined). When you change the graph number, SuperCalc3 remembers that for you. So, you are always working with the most recently used graph number. When you select a graph number, the entry line displays it, and the prompt changes to:

```
?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)
```



THE SLASH COMMANDS

A graph description contains all of the information necessary to produce a graph. Items such as Graph-type, Headings, and Data ranges that are to be represented are included and can be used again or changed without re-entering the information.

? The Current Graph Status

Press (?) from the *View* prompt to view the current graph definition settings. The Current Graph Screen shows a sample of an empty graph #2 configured for an Apple Color Plotter.

```
Current Graph (#2) --> Bar      Current Device --> Apple Color Plotter

HEADINGS:                      SCALING:
Main: (empty)                  Y-Axis: Auto
Sub: (empty)                   X-Axis: Auto
X-Axis: (empty)
Y-Axis: (empty)

TIME LABELS: (empty)

      Data      Pt-Labels  Var-Labels  FORMATS:
A: (empty)      (empty)    (empty)    Axis:
B: (empty)      (empty)    (empty)    Time:
C: (empty)      (empty)    (empty)    Var:
D: (empty)      (empty)    (empty)    Point:
E: (empty)      (empty)    (empty)    % .
F: (empty)      (empty)    (empty)
G: (empty)      (empty)    (empty)
H: (empty)      (empty)    (empty)
I: (empty)      (empty)    (empty)
J: (empty)      (empty)    (empty)
```

Screen 3-9: Current Graph

D Assigning Data

The *Data* graph description allows you to specify the cell range to be used for the graph. When you select *Data*, the prompt and command lines read:

```
Var A: Enter range (now empty), <space> to skip, <-> to clear
14>/View,1,Data,
```

THE SLASH COMMANDS



Data can be assigned for up to ten Data Variable ranges, identified as A through J. You can also define data in a block. Each row in the block becomes a Data Variable range.

The block assigns the lowest number of Variables possible. For example, if you have fewer columns than rows, the columns become the variables. When you assign a range with the same number of columns and rows, 10 x 10 or less, the program automatically assigns the rows as the variables. When you assign the same number of rows and columns, over 10 x 10, SuperCalc3 asks whether the block is to be assigned by row or column.

The Data Variable range is initially empty as indicated in this prompt. You must define at least one Data Variable Range for SuperCalc3 to produce a graph. If you attempt to produce a graph without this definition, the error message *No Variable Defined* results.

Each individual (that is, non-block) Data Variable range may contain cells in a single row or column only. When you enter the Data description, you are initially defining Variable A. The current Variable letter is the first item on the prompt line. The < space >| to skip option allows you to rotate through the ten Data Variable ranges without changing their values. For example, if you press the space bar once, the prompt line changes to Variable B as below, and you may define the cell range for Variable B. After you define Var A, SuperCalc3 cycles to Var B automatically. After Variable J, you are returned to the / View prompt.

When you enter a Data Variable range and close with a **[RETURN]**, SuperCalc3 returns to the /View prompt. You may alternately close a Data Variable range specification with a comma, in preparation for the next range:

```
Var B: Enter range (now empty), <space> to skip, <-> to clear  
14>/View,1,Data,
```



THE SLASH COMMANDS

Note:

As with other SuperCalc3 commands you can back out of a command with **[Delete]** or use **[Apple 2]** to cancel the entire command line.

Var A is the first defined Data Variable range. You must have a Var A, even if you have just one Data range.

The <-> to clear option sets the current Data Variable range to empty. The program prompts you for the next Variable range entry.

ERROR, NA, text, repeating text, or blank cells are non-graphic data types. If all cells in a range are non-graphic, the Variable is skipped. In this way, you can define block data ranges that include underlines and text, and your graphs will not have "missing" bars, lines, etc. for the non-numeric data.

All of the remaining commands in *View* are optional. To define a simple Bar graph, all you need to do is define a Data Variable range.

If you want to add appearance options — headings or labels or change the graph type, you can do so with the commands described in the remainder of this section.

G Selecting the type of graph

To select the type of graph, enter **Graph-Type**. The prompt line changes to:

The image shows a rectangular window with a textured, gray background. Inside the window, a single line of text is displayed in a monospaced font. The text is a list of graph types separated by commas: "P(ie), B(ar), S(tacked-Bar), L(ine), H(1-Lo), X(-Y) or A(nea)?". The text is centered horizontally within the window.



- P** Presents your data as a *Pie* graph. A Pie graph can represent only one Data Variable range. Variable A is the default. If you have defined several Variable ranges, you may elect to plot the pie as all cells of one variable or as all Variables for one row or column (usually a time period). Use **/View,#,Options,Pie-mode, All** or **One** to toggle between these options. Negative values are not plotted.

The percentage of the total pie that each data point (spreadsheet cell) represents is placed along side its segment of the pie unless you suppress printing with **/View,Options,Format,%,Hide**.

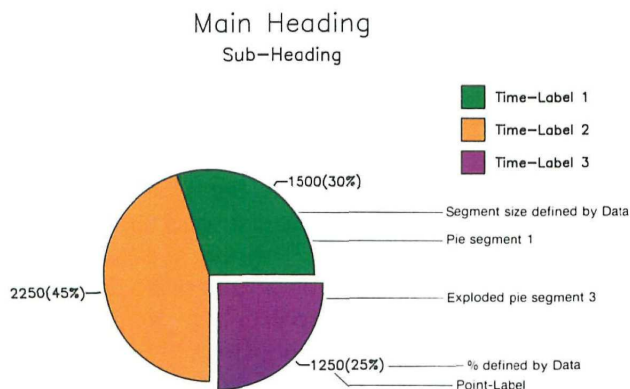


Illustration 3-7: Sample Pie Graph



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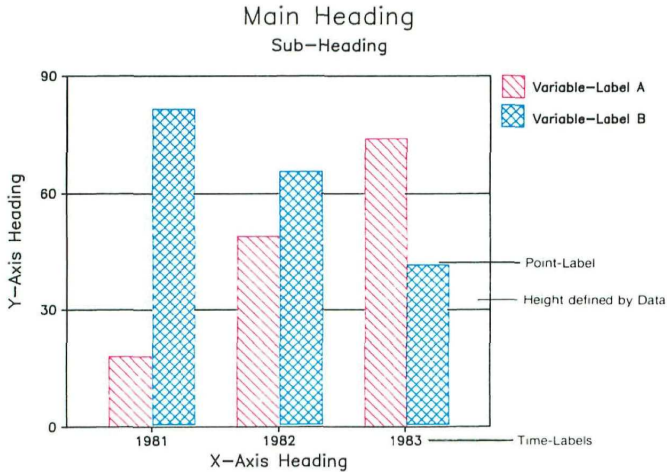


Illustration 3-8: Sample Bar Graph

- B** Presents your data as a *Bar* graph. *Bar* is the default Graph-Type. Use this option when you want to change a Graph-Type back to *Bar*. A Bar graph has two axes. The horizontal axis represents the number of data points (columns or rows of the Data Variable range), and the vertical axis represents the magnitude of each variable in each cell. The number of bars per cluster is equal to the number of variables plotted (which corresponds to the number of Variable ranges from A—J). There can be one Time-Label for each data point, and one Point-Label for each item in the row or column.

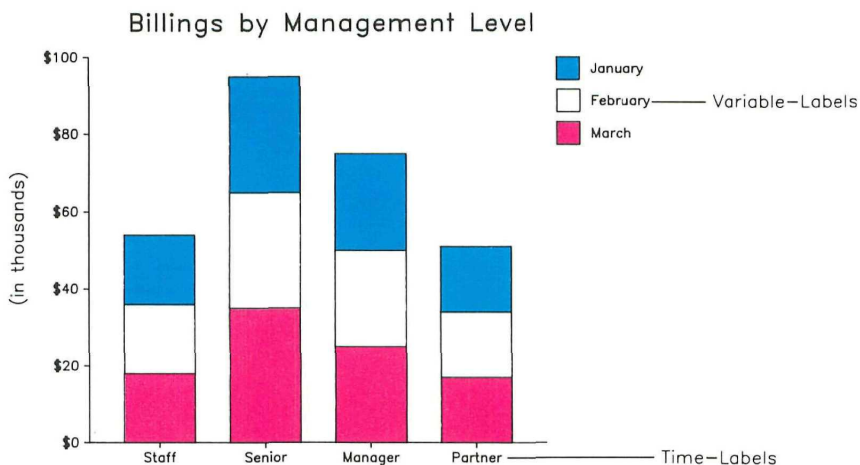


Illustration 3-9: Sample Stacked-Bar Graph

S Presents your data as a *Stacked-Bar* graph. A Stacked-Bar uses all of the Variable ranges associated with the current graph, and accumulates them (Var A + Var B + ... + Var J) for each time period. A stacked-bar graph has two axes. The horizontal axis represents the number of data points (columns or rows of the Variable Range), and the vertical axis represents the magnitude of the sum of all Variables in that stacked-bar. The number of "stacks" is equal to the number of Variables and the number of bars is equal to the number cells for each Variable. Negative values are not plotted.



THE SLASH COMMANDS

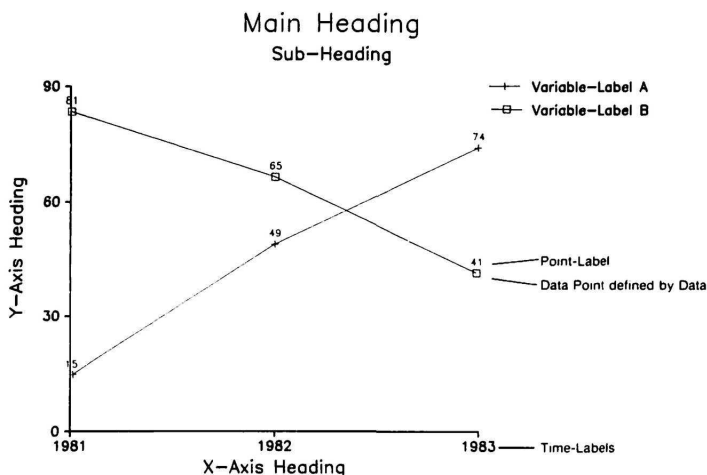


Illustration 3-10: Sample Line Graph

- L** Presents your data as a *Line* graph. All of the Variable ranges associated with the current graph are used to produce this graph. The horizontal axis represents the number of data points (columns or rows of the Variable range), and the vertical axis represents the magnitude of the Variable in each cell. The number of lines is equal to the number of Variables selected. The data points of a line graph can be indicated with symbols and connected with lines if you wish (or you may use both). It is even possible to have a line graph with neither lines nor symbols. In this type of graph, you would normally indicate the data points using Point-Labels.
- A** Presents your data as an *Area* (Stacked Line) graph. The *Area* graph is to the *Line* graph as the *Stacked-Bar* is to the *Bar* graph. *Area* uses all of the Data Variable ranges associated with the current graph, and accumulates them ($\text{Var A} + \text{Var B} + \dots + \text{Var J}$) for each period. The horizontal axis represents the number of data points (columns or rows in the Data Variable range), and the vertical axis represents the cumulative magnitude of all of the



Illustration 3-11: Sample Area Graph

Variables in each row or column. The number of lines is equal to the number of variables selected, and the number of symbols for each line is equal to the number of data points (cells) for each Variable. Negative values are treated as zero.

- H** Presents your data as a *Hi-Lo* graph. This graph shows the spread between a *high* Variable — the first defined variable (usually Variable A), and the *low* Variable — the second defined Variable (usually Variable B). Each Hi-Lo data-pair is shown connected by a vertical line. All other Variables (usually Variables C-J) are shown as points on the Hi-Lo line. Data-points that fall outside this Hi-Lo range are not plotted.



THE SLASH COMMANDS

Kayo Common
Hi-Lo Example

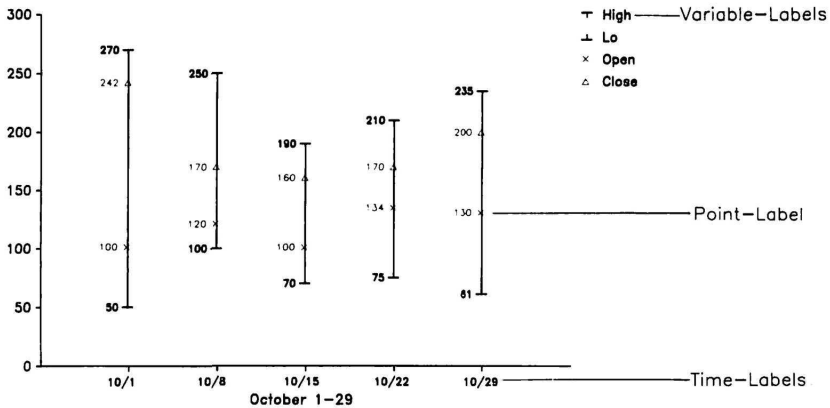


Illustration 3-12: Sample Hi-Lo Graph

- X** Presents your data as an X-Y (Scatter Plot) graph. All of the Variable-Ranges (minimum 2) associated with the current graph are graphed — each variable plotted against Variable A. An X-Y graph may be thought of as three-dimensional. Both the X-axis and the Y-axis are numeric. The third dimension is represented by the order in which the points are plotted. There is no explicit time element in an X-Y graph, so Time-Labels do not apply. Variable-Labels also do not apply, since each point represents two Variables. Point-Labels may be assigned for Variables (B-J).

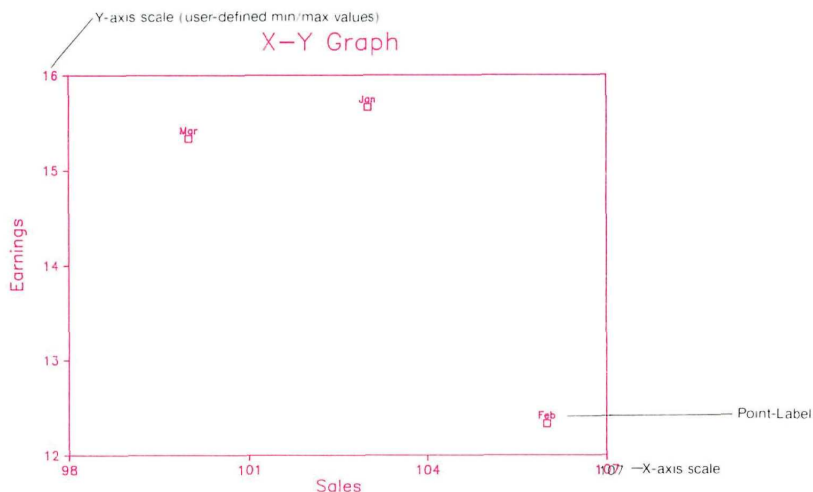


Illustration 3-13: Sample X-Y (Scatter Plot) Graph

Note that the X-axis represents sales per employee, and the Y-axis represents each employee's earnings. The third dimension in this graph is time. Each point on the graph represents a different month. Notice that there is no linear representation of data, since the point for February is to the right of the point for March. If you were to connect the points, the graph would look like there is no correlation of the points — no trend.

X-Y graphs are often used to look at the *relationships* of data. If you plot a large number of data points, you can sometimes see a correlation or a trend in the data. In the example above, if there were enough time periods graphed, you might be able to spot some seasonal pattern to sales, or see if sales were on a predictable upward (or downward) trend. To do this, you would let SuperCalc3 connect the points (by default).

You can scale both the X- and Y-axis of this graph manually.



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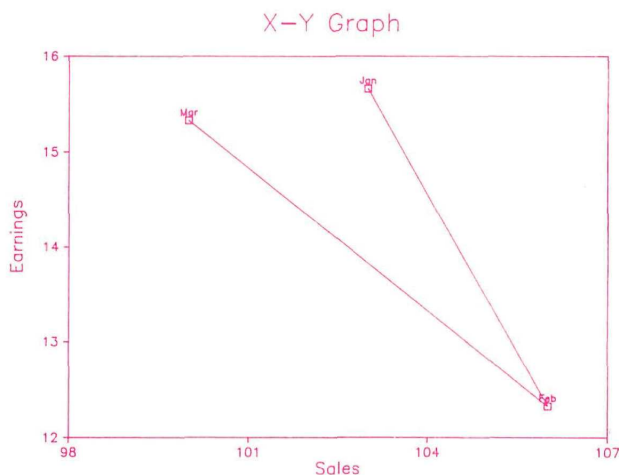


Illustration 3-14: X-Y Graph (No Trend)

- T** The *Time-Labs* option allows you to specify the numbers or words from the spreadsheet that mark the X-axis ticks on all but X-Y graphs, and the segments of a pie graph.

When you select the *Time-Labs* option the prompt and command lines read:

```
Enter Time-Label range (now empty) or <-> to clear
21>/View,1,Time-Labels,
```

Initially, the Time-Label range is empty — you must define it. Enter the appropriate cell range, for example, A5:F5. If all of the Time-Labels are on the same row, and that row is otherwise empty, you can enter only the row number, such as 5, rather than a partial row range. This also applies to a column letter rather than a partial column range. If you respond with **[RETURN]** the current entry remains unchanged. To produce a graph with fewer Time-Labels than data points, make some cells in the Time-Label range blank.

THE SLASH COMMANDS



The $\leftarrow \rightarrow$ to *clear* option erases the current Time-Label range and replaces it with the prompt (now empty). There is only one Time-Label range for each graph. You are not required to define Time-Labels to produce a graph.

- V** The *Variable-Labels* option lets you specify cells from the spreadsheet that display the names of the Variables. Typically these labels are words, though they may be numbers.

When you select the *V(ar-Labs)* option the prompt and command lines read:

```
Var A: Var-Label cell or range (now empty), <space> to skip, <-> to clear  
25>/View,1,Variable-Labels,
```

Enter the cell range desired. You are not required to have Variable-Labels to produce a graph. You may define a range of Variable-Labels for each of ten Variables (A-J). Press the **[Spacebar]** to skip to the next variable, and the **(-)** key to clear the current variable and rotate to the next variable.

- P** The *Point-Labels* option allows you to assign a label to individual plotted points.

When you select the *Point-Labels* option the prompt and command lines read:

```
Var A: Enter Point-Label range (now empty), <space> to skip, <-> to clear  
22>/View,1,Point-Labels,
```



THE SLASH COMMANDS

Enter the cell range desired. You are not required to have Point-Labels to produce a graph. You may define a range of Point-Labels for each of the ten Variables (A-J).

Press the **[Spacebar]** to rotate to the next variable, and the **(-)** key to clear the current variable and rotate to the next variable.

- H** The *Headings* option allows you to include a title, and subtitle for your graph and a title for each axis. You may specify four types of headings:
 - M** *Main heading* — The Main heading prints at the top center of your graph.
 - S** *Sub-heading* — The *Sub-heading* option centers the indicated text directly below the Main heading.
 - X** *X-axis* heading places the indicated text beneath the X-axis of a graph.
 - Y** *Y-axis* heading places the indicated text along the Y-axis of a graph.

When you select the *Headings* option the prompt and command lines read:

```
M(Main), S(Sub), X(-axis) or Y(-axis)?  
16> View, 1: Headings;
```

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Each of the options has a similar prompt. For example, when you select the *Main* option, the prompt line reads:

```
Enter title cell (now empty) or <-> to clear  
23>/View,1,Headings,Main,
```

Enter the cell that contains the heading or (-) to clear the current heading. Specify each of the four types of heading in a similar manner.

Note that each heading can be only one cell in the spreadsheet — ranges are not acceptable for this command. However, if the heading is longer than the width of the graph SuperCalc3 truncates it.

- O** The *Options* command lets you determine additional formatting, where it will go and, the quality of the final output. When you select *Options* the prompt and command lines read:

```
F(ormat), E(xplosion), P(ie-mode) or S(caling)?  
17>/View,1,Options,
```

- F** The *Format* option allows you to specify the display characteristics of labels — *Axis*, *Time*, *Variable*, *Point*, or *%* labels. When you select *Format*, the prompt and command lines read:

```
A(xis), T(ime), V(ar), P(oint) or % Labels?  
24>/View,1,Options,Format,
```



THE SLASH COMMANDS

The first four choices present the same formatting options. These options are identical to the *Format* command spreadsheet display format options except that column width is changed to label width, and the * option is deleted. When you select any of the first four items, the prompt and command lines read:

```
Enter: (I,G,F,X,R,L,TR,TL,TC,U(1-8),H,D or label width)
29>/View,1,Options,Format,Axis,
```

See the */Format* command for a detailed description of each option.

When you select the % option the prompt and command lines read:

```
Enter <0-9> as width for (x%) field in Pie, or 0(default)
26>/View,1,Options,Format,%
```

This option is for Pie graphs only. The default is sufficient in most cases, but this adjustment option is provided. The size of the pie drawn on your console varies with the amount of text included, so you might want to hide (or set Label width of 0) % labels to maximize the size of the pie on your screen. Select the number of characters for the % labels for your pie graphs. The % width includes the total number of characters in the % label, including the parentheses. Thus, a value of zero, 1 or 2 results in no label being displayed. SuperCalc3 will try to optimize the display, given the width of the label you provide. For example, a width of 5 will produce (32%), while a width of 3 will produce 32%.

THE SLASH COMMANDS



- E** *Explosion* lets you select which segments of a pie graph you want exploded, or highlighted. When you select this choice, the prompt and command lines read:

```
Highlight Pie Segments? A(11), N(one), or <1-8> (segment #)  
27>/View,1,Options,Explosions
```

Up to 8 pie segments may be exploded. Segments 1-8 refer to the first 8 cells in the Data-Variable Range.

- P** *Pie-Mode* allows you to choose whether a Pie graph plots all points of a single variable or the corresponding point of all variables. In many cases, this means all time periods of one variable or all variables in one time period.

Time-Labels and Variable-Labels are automatically switched to represent the Variable Range plotted, and the X-axis is labeled with the appropriate members of either the Time-Label or Variable-Label. When you select *Pie Mode*, the prompt and command line display:

```
0(one Variable) or A(11 variables)?  
26>/View,1,Options,Pie-Mode
```

One Variable lets you specify a single variable to plot (A-J). The segments have Time-Labels legends.

All Variables lets you specify which point of each variable is plotted. Enter a number (1-254). The segments have Variable-Labels legends.



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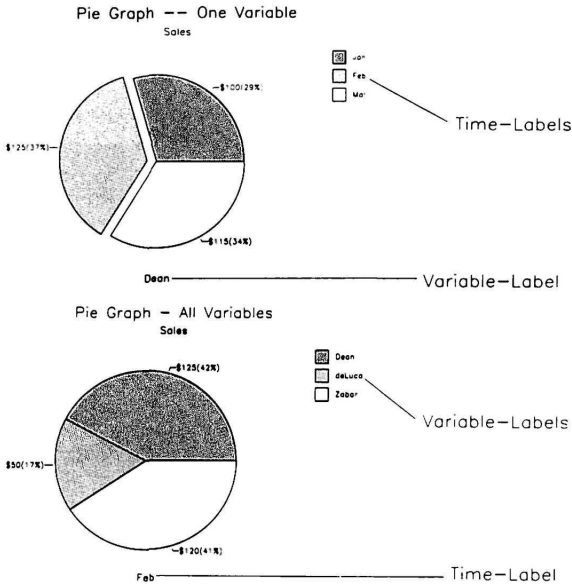


Illustration 3-15: Pie Mode Example

- S** *Scaling* allows you to select manual scaling for the Y-axis (and also for the X-axis in X-Y graphs). Scaling does not apply to Pie graphs. You may want to use scaling to make all of a series of graphs be drawn to the same scale, for easy comparison of results. SuperCalc3 automatically tries to scale your graph to make it meaningful to you. For example, if data point M is 850 and data point N is 900, it is typically easier to read a scale that does not start at 0 (on non-cumulative graphs). If you are not satisfied with the automatic scaling that SuperCalc3 provides, you can manually scale with this option. When you select this choice, the prompt and command lines read:

```
X(=axis) or Y(=axis)?
25>View,1,Options,Scaling.
```



Note that scaling for X-axis is ignored in all but X-Y, and that both are ignored for Pie graphs (however, both are retained if you change your graph to a type for which the scaling is supported).

Enter the appropriate cell in response to the next three prompts.

```
Enter Cell containing Minimum, or < space> for Auto-Scaling.  
32>/View,1,Options,Scaling,Y-axis,
```

```
Cell containing Maximum?  
33>/View,1,Options,Scaling,Y-axis,a1,
```

```
Number of divisions for Axis? (1-9)  
38>/View,1,Options,Scaling,Y-axis,a1,b1,
```

You then tell SuperCalc3 how to divide the axis (this corresponds to the number of tick marks).

Special Considerations:

1. For execute files, **[Apple 9]** and **[Apple 0]** should be replaced with **[Ctrl Y]** and **[Ctrl T]**, respectively, if using any text editor to create the execute files. If **[Control]** keys are required, use a text editor or word processing program to create the execute file.
2. See */Global,Interface* and */Global,Graphics* for more graph-related information.



Window

Synopsis:

Split the display window into two portions, horizontally or vertically.

/ Window	<ul style="list-style-type: none">Horizontal splitVertical splitClear to right or below splitSynchronize split-wise scrollUnsynchronize split-wise scroll
----------	---

Command Description:

The *Window* command splits the display window into two separate parts. Each portion can have separate *Format* and *Global* options. *Window* uses the current row or column to determine where to split the display.

You move the cursor between windows with the (;) command from the spreadsheet mode.

The *Window* options are:

- H** *Horizontally* splits the screen. The current row moves down and the new border replaces it. The current cell moves down into the newly created screen.
- V** *Vertically* splits the screen. The current column moves right and the new border replaces it. The current cell moves right into the newly created screen.
- C** *Clears* the split screen. The window that is above or on the left displays in full. The global display options for that window remain in effect.



- S** *Synchronizes* scrolling in display windows when the cursor moves parallel to the split.
- U** *Unsynchronizes* scrolling. The display windows scroll independently.

Some *Global* options can be set independently in each display window.

Special Considerations:

1. Each portion has separate *Title* lock and *Global* display options, i.e. (*Formulas*, *Next*, *Border*, and *Tab*).
2. Your spreadsheet can be *Saved* with the windows set, but cannot be *Output* showing both windows.

Note:

You can print any or all of the spreadsheet regardless of which window contains the current cell. However, the window containing the spreadsheet cursor controls the print display format.

3. SuperCalc3 can display the same cell in each window using different display *Formats* or *Global* display options, thus the same region of the spreadsheet may be viewed as formulas and values simultaneously.
4. Each *Window* of a split-screen display has its own *Title* lock specification. Any lock that is meaningful is retained in both windows after a screen is split.






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eXecute

Synopsis:

Reads and executes commands from a disk file.

/X(eXecute) { Filename for execute file 
 ESC for current name 
  for Directory options

Command Description:

The *eXcute* command enables you to create a disk file with commands and data that perform SuperCalc3 operations automatically, without any keyboard entry. It has a suspend and resume feature that lets you pass control back and forth between the eXecute file and the keyboard (for example, to *black box* applications). By using *eXecute* with suspend and resume, you can automate parts of the spreadsheet process such as loading and printing a pre-built file, while retaining the ability to accept keyboard entry, perhaps for data to be entered by an untrained user.

An eXecute file contains the exact characters you would type at your keyboard. Each line of the file contains exactly the characters you would press to execute a specific command. Characters that SuperCalc3 supplies through its interpretive prompting must NOT be in the file. For example, for the *Zap* command, enter **/Z** into the eXecute file, not **/Zap** or **/Z(ap)**. Every SuperCalc3 operation is available, except editing functions on the command/data entry line, but including cursor movement (represented by the keys ^, v, <, > for up, down, left, and right) and data entry.



Activating eExecute File Commands

To start an existing eExecute file, enter **/X(eExecute)** on the command line, and then at the prompt specify the filename that you are using for your eExecute file. The current data directory path is assumed unless you specify another. The filename suffix **.XQT** is assumed, but you may specify any valid suffix. If you press **[Esc]** at the filename prompt, the name (without a suffix) of the file last loaded appears on the entry line.

SuperCalc3 loads and executes the instructions located in the **.XQT** file. To stop execution, press **[Ctrl C]**.

The Suspend/Resume Command (&)

When you *create* an eExecute file, include an ampersand (**&**) to *suspend* operation of the eExecute commands at any point.

The prompt *Awaiting keyboard entry* tells you that you can begin entering data or any SuperCalc3 command while the eExecute file operations are suspended.

There are two ways to *resume* automatic operation of the eExecute file:

1. Type an ampersand (**&**) command. The ampersand is recognized when the SuperCalc3 program is in spreadsheet mode (such as when a *(/)* command would be recognized).
2. When the last unprotected cell of the spreadsheet is entered, with *Global*, *Tab* and *Next* on (See the *Global* command), the eExecute file automatically resumes.



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Creating an eXecute File

You can create eXecute files directly from SuperCalc3, or you can use a word processing program. You may create libraries of eXecute files, and call them with the *eXecute* command.

To create an eXecute file from SuperCalc3, enter the command key strokes as text in column A *only*, one command per cell. *Output* the display to *Disk* giving it an .XQT extension. If you don't specify an extension, SuperCalc3 automatically gives it a .PRN extension.

When you *Output* an *eXecute* command file to *Disk*, remember the following:

- The border must be off. Use the *Global, Border* command.
- The column width of Column A must be greater than the largest command entry, or commands will be truncated.
- Save the file as a .CAL file before outputting it in case you want to edit it later. Use the *Save* command.
- Output the file to *Disk*, giving it the .XQT extension. Use the *Output* command, and be sure to *Output* the *Display*, not the *Content*.

Example of a complete *Output Display to Disk* command:

/Output,Display,All,Disk,/diskname/filename.XQT [RETURN]

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Example of an eXecute command file created with SuperCalc3 (note that a quote mark (") must be entered in front of each non-text entry to make it a text entry):

```
"/ZY  
"/Lfilename,A  
"/FG$L  
"/ICD  
"/FCD,30  
" = D1  
Scratchpad  
"&  
"/Sfilename,BA  
"/ZY
```

The ampersand (&) suspends operation of the command file, allowing the user to make entries. Then when the *user* presses an (&), the eXecute command file resumes — executing the *Save* and *Zap* commands, as shown.

Note:

If you create an eXecute file with a word processing program, do *not* enter a quote mark (") in front of non-text entries.

Special Considerations:

1. An eXecute file must be an ASCII file. A binary file such as the .CAL files produced by the *Save* command cannot be executed.
2. There is no way to enter a special key function, such as **[Apple 2]** to clear the command line, in an eXecute file which you create in SuperCalc3. You may substitute Control character equivalents (examples below) when using a word processing program to create an eXecute file.



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Refer to your word processing manual for equivalent entry keys for the following control characters.

Control	C	Abort command
Control	Y	Plot
Control	T	View
Control	P	Page Up
Control	N	Page Down
Control	F	Page Right
Control	A	Page Left
Control	I	Tab
Control	O	Back Tab
Control	B	End
Control	W	Home
Control	V	Insert Mode

3. **[Ctrl D]** in an eXecute file results in a 1/2 second delay in processing. You can enter **[Ctrl D]** several times to produce the delay time you want.
4. When the eXecute file operation is suspended, any SuperCalc3 command can be typed from the keyboard; however, many will make no sense, or may even be destructive (for example, you could *Zap* the current spreadsheet, or *Quit* the program).
5. The ampersand can never be placed into a *cell* from the eXecute file. It is always interpreted as suspending operation and can never be used as a literal.



6. When you create an eXecute file, the ampersand can appear as many times as you want, and at any place on any line in the eXecute file.

Note, however, two important implications of this:

- If you enter an **&** to suspend execution before a command sequence is completed, a user must manually complete the sequence and press **[RETURN]**, before pressing (**&**) to resume execution.
 - If you enter **& [Return]** as a separate line in the eXecute file, SuperCalc3 will use the **[Return]** to advance the cursor, unless *Global,Next* is off.
7. You can use combinations of **&** and *GoTo* (such as = B4) to set up interactive prompting for data values. For example, the command file might include these commands:

" = B4

"&

" = B7

"&

With *Global,Next* toggled off, the carriage return after each **&** would be ignored. The spreadsheet cursor would remain in place until the user moved it, or until an **&** was typed to resume the eXecute file and proceed to the next *GoTo* command.

8. To terminate the execution of an .XQT file, and return control to the keyboard, enter a **[Ctrl C]** from the keyboard.



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9. SuperCalc3 recognizes an eXecute file by its structure, not by the .XQT extension. Though we name our eXecute file example with an .XQT extension in this manual, you can actually use any extension you wish (e.g., .JAN, .FEB). It might be easier to recognize eXecute files on your disk directory, however, if the .XQT filename extension is regularly used.



Zap

Synopsis:

Erases a spreadsheet from the screen display, clearing all data and resetting all format settings. Provides an empty screen for a new spreadsheet.

/ Zap	<div style="border-left: 1px solid black; padding-left: 5px;"> <p>Yes to delete current spreadsheet; retains settings at Global menus, Output Setup, & Directory</p> <p>No to cancel this command</p> <p>Contents, same as Yes, but also retains User-defined format table settings</p> </div>
-------	---

Command Description:

The *Zap* command erases the cell contents and resets the display format for the entire spreadsheet. The User-defined format table is reset to the default settings unless you use *Zap Contents*. *Zap* overrides protected cells.

Zap is equivalent to a fresh start. All cells become empty and all format settings and modes of operation revert to their standard settings. *Zap* blanks all of the graphs. However, *Zap Yes* does NOT clear session related changes: the current data directory path, *Output Setup*, *Global Optimum*, and *Global Graphics* settings.

The *Zap Contents* option performs the same as *Zap Yes* but it also retains the current User-defined format table settings.



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Examples:

/Zap,Yes

/Zap,No

/Zap,Contents

Special Considerations:

1. *Zap* overrides protection of cells.
2. It is a good practice to use the *Zap* command when changing spreadsheets rather than just loading a new one on top of the old one.

USING DATA MANAGEMENT IN SUPERCALC

INPUT - Block size MUST include the FIELD NAMES

CRITERION - Arithmetic criteria MUST be done with a beginning location JUST BELOW the COLUMN FIELD NAME eg if the CFN is at G3 then the criterion in the Criterion Block will read eg G4>250

OUTPUT - Output Block location SHOULD NOT INCLUDE the Output Block Titles because output starts JUST BELOW the top row BUT WITH A BLANK ROW (so have to guess max data + 1 for number of rows)

References - 3.131- 3.144 and Lesson 9 5.125

FIELDs must be adjacent
1st you cannot skip fields
in a block - must be
room to print all
(unless you delete
intervening fields
temporarily)

11/22/44 11:00 AM 11/22/44 11:00 AM

11/22/44 11:00 AM 11/22/44 11:00 AM



11/22/44 11:00 AM 11/22/44 11:00 AM

11/22/44 11:00 AM 11/22/44 11:00 AM
11/22/44 11:00 AM 11/22/44 11:00 AM
11/22/44 11:00 AM 11/22/44 11:00 AM
11/22/44 11:00 AM 11/22/44 11:00 AM

11/22/44 11:00 AM 11/22/44 11:00 AM
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11/22/44 11:00 AM 11/22/44 11:00 AM

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11/22/44 11:00 AM 11/22/44 11:00 AM

11/22/44 11:00 AM 11/22/44 11:00 AM

11/22/44 11:00 AM 11/22/44 11:00 AM



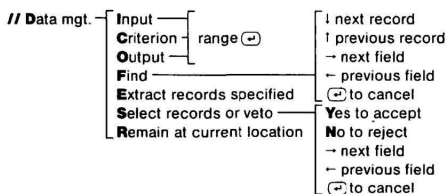


Data Management

Synopsis:

Data Management makes it possible to search for specific data in a spreadsheet. First, define a block on a spreadsheet as the Input block for a search operation. Each row in the block becomes a record, and each column designates a field. Next, specify the criteria for locating the data you want. Finally, choose the method of displaying the requested information. You can find and highlight each record that meets the criteria at its current position in the Input block. You can also extract all or selected records that meet the criteria to an Output block on the spreadsheet. You can then print the Output block, write it to disk, or save it as a separate spreadsheet.

When combined with SuperCalc3's powerful two-key dictionary sort (*Arrange*), the *Data Management* commands help you organize and find your data with great ease and accuracy.



Command Description:

To access the *Data Management* commands, enter **//Data**.



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The prompt line displays your *Data Management* options:

```
I(input),C(riterion),O(utput),F(ind),E(xtract),S(elect),R(emain)?  
8>//Data,
```

Note that the *Data Management* command differs from most other slash commands in that once you have entered //Data, selecting and finishing an option returns you to the //Data prompt, rather than to the idle prompt (1>). This allows you to perform additional Data Management tasks without having to retype //Data. When you have finished an option, you can exit back to the //Data prompt by pressing the **[RETURN]** or by pressing the **[Ctrl Z]** key.

- I *Input* specifies the range of cells that contains the records and fields for the Data Management functions. When you select *Input*, the current Input cell range appears:

```
Input range (now A6:C21), < ~ > to clear  
14>//Data,Input,
```

The first row of the Input range must contain the field names, which must be text. If you omit the field names in the Input range, you *must* leave a blank first row and any field names later used in the Criterion block will be ignored. The program begins searching for the data in the second row of the Input range



For example, an Input block might look like this:

		Fields			
Input Range	{	Name	Level	Billings	} Field names
		Dean	Senr	1000	} Records
		deLuca	Staff	750	

Illustration 3-16: Sample Data Management Area

The Input range must be defined before you use *Find*, *Extract*, or *Select*.

- C** *Criterion* specifies the range of cells where the criteria instructions are stored. When you select *Criterion*, the following prompt appears:



The Criterion range may be specified either before or after you enter the criteria. The range must indicate the exact number of rows in the Criterion block. If one of the rows specified is blank, the program will highlight or extract data from *all* the records in the input block. However, you may specify more columns as long as they are blank — this gives you more flexibility in adding or removing fields when you change your criteria.

Refer to the end of this section for information on how to enter criteria.

A Criterion range must be defined, and your criteria entered in the designated block before you use the *Extract*, *Select*, or *Find* options.



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- O** *Output* specifies the range of cells in which the requested data (from either *Extract* or *Select*) will be placed. This range must allow enough rows for all the requested data or an error message will be displayed.

When you select the *Output* option, the following prompt appears:

```
Output range (now A25:C40) . . . <-> to clear  
15> //Data,Output.
```

If you define an Output range that overlaps an Input range, an error message appears.

The first row specified in the Output range is reserved for field names. You must type field names in the first row of the Output block when you want to control which fields will appear and their order. If you leave the first row blank, the fields of each record will be copied from the Input block column by column (field by field) until the Output block has been filled. If the Output range is wide enough and the first row is blank, the entire record will appear.

The Output range may not overlap the Input range, and it must be defined before using *Extract* or *Select*.

- F** *Find* searches the Input block for data that match the criteria you specified in the Criterion block. For example, you might tell SuperCalc3 to search for all products with sales of more than \$100,000. As the matching data is located, its record is highlighted on our console display. You may then either go on to the next record by pressing the **[dn arrow]** and **[rt arrow]** keys. As each field in the record is examined, its contents are shown on the current cell status line of the console display:

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```
Form=750
Next record v or Next field < or > Cancel <RETURN>
12> //Data,Find
```

You must specify Input and Criterion ranges before using *Find*.

- E** *Extract* allows you to copy the requested data from the Input block to the Output block on the spreadsheet, leaving the original records intact. Only the displayed text or values (not the formulas) of the cells are copied. If the Output area already contains data it will be blanked before the new data is copied.

You must specify Input, Output, and Criterion ranges before using *Extract*.

- S** *Select* is a variant of *Extract* that allows you to flip through the records that meet your criteria and select data that you want to copy to the Output block. As matching records are located, each is highlighted on the console display, and you are given the option of accepting or rejecting the data in that record. As with *Find*, you may move among fields in the record with the **[lt arrow]** and **[rt arrow]** keys.

```
Extract ? Y(es) or N(o), Next field < or > Cancel <RETURN>
14> //Data,Select
```

Only the displayed text or values (not the formulas) of the cells are copied.

You must specify Input, Output, and Criterion ranges before using *Select*.



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- R** *Remain* lets you leave the spreadsheet cursor in its current position, terminate the *//Data* command and return to the idle prompt. This makes it easy to leave the cursor on a record you have requested so you can edit it.

If you terminate *//Data* without *Remain*, the cursor returns to the spreadsheet location used before you entered the *//Data* command. While you are using the *//Data* options, the cursor moves to the upper left corner of each range you request — the Input range for *Input*, the Criterion range for *Criterion*, or the Output range for *Select*, *Extract*, or *Output*. *Remain* thus provides a fast way to move to the Input, Output, or Criterion block of the spreadsheet.

Remain clears any existing title locks.

Notes:

1. Automatic Range Adjustment

Since the *Insert* and *Delete* commands automatically adjust the Data Management Input, Output, and Criterion range definitions, you may add or delete records or fields in the middle of an Input, Output, or Criterion block.

2. Using the Arrange Command

With the *Data* command you identify records that meet the criteria you specify by field and distinguish these records from the rest of the Input block. With the *Arrange* command you sort an entire Input block in alphabetical or numerical order by one or two fields. For example, you can arrange the records first by state, and then by zip codes within that state. However, you can always combine the two approaches by first extracting records that meet the criteria and then arranging them in a new order.



Note that *Arrange* sorts entire rows. If you are going to be using the *Arrange* command don't put a criteria block, for example, in the same rows used for your Input or Output blocks.

3. Splitting a Database

If you want to maintain more records than will fit in a spreadsheet given your current memory capacity, you can split the database into separate spreadsheets. For example, you could put customers A-K in one, and L-Z in another.

Entering the Criteria:

SuperCalc3 provides much flexibility in specifying criteria to apply against your database.

First Row — Field Names

The first row of your Criterion block is reserved for the names of the fields you want to search through. You may omit the field names, leaving the first row blank, to perform a "global search" (SuperCalc3 searches the entire Input block for matches). This is a quick way to search for one or more occurrences of a data value or name, date, or textual function regardless of its position in the spreadsheet.

The Search Criteria

The criteria you enter under each field name can match numbers or text. In either case, the match can be exact, non-selective or selective.

An exact text match entry would be any word: East matches East. An exact formula match would be any number, date, or textual value: 2000 matches 2000.



THE SLASH COMMANDS

A non-selective match leaves the cell under a Criterion field name blank and accepts any value for that field. This is handy when you are changing criteria — you don't have to remove the field name but can leave it there for future use.

A selective formula used to match values can be a relational operator such as $B2 \geq 2000$, or a logical function such as $AND(B2 < 500, B2 > 1000)$, or any other suitable formula.

Refer to the end of this section for more information on using formulas.

A selective text match can use "wildcards":

? in one or more character positions means "accept any single character in this position" (J?ne matches Jane or June).

Note Remember to use a double quote mark (") in front of any word in which a question mark is used. Otherwise, SuperCalc3 will display an Answer Screen when you type the?.

***** at the end of a text entry means "accept all characters that follow it" (Jo* matches Jones, John, Jorgensen, but not Jane).

~ (tilde) means "accept anything except the letters following the tilde" (~ Jones matches anything but Jones, and ~J* matches all field data except those starting with a J).



The different types of matching criteria are summarized in the following table:

Criterion Match Types	Specific Field Search	Entire Database Search
Exact Text Match Entries	Sales Reps Region Smith, B. East	Smith, B. East
Exact Formula Match Entries	Bonus 2000	2000
Selective Text Match Entries	Sales Reps Region Sm* W*	Sm* W*
Selective Formula Match Entries (Field Name Entry is optional)	Bonus B2>=1500	Not applicable: Cell name defines a Field.

Illustration 3-17: Criterion Match Types

When you enter two rows of criteria under a field name, SuperCalc3 accepts a record if either criteria is true. When you enter two columns of criteria, SuperCalc3 accepts a record only if both criteria are true. Here's an example:

	Name	Billings
OR	Smith	C7>1000
	Willensky	C7>1000
	AND	

Illustration 3-18: Multiple Match Criteria



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This means accept any Smith or Willensky with billings of more than 1,000.

Notes:

1. When you specify text criteria you must be precise. This includes the use of blank spaces created with the spacebar as well as use of upper/lower case:

"SmithA" will not match "Smith A" and

"Smith" will not match "smith" or "SMITH".
2. Whenever you request a Find, Extract or Select operation and SuperCalc3 cannot find any records with data that match your criteria, this message appears:

No matching record found

If you think a matching record should be found, check that both the Input and Criterion ranges are correct. Then double check the criteria you specified.
3. In text matches, if the field names of the Criterion block do not match any of the Input block field names, no records will be found.

Cell References in Formulas:

The search operation always begins in the second row of the Input block (the first row below the field names). The cell you specify in the formula tells the program which cell to reference for the first test operation.



Current cell reference

Normally you want to test the current record during the search (i.e. evaluate a record based on its own data). To do this, your formula must reference a cell in the second row of the Input block (the row below the field name), even if it does not contain a record. The cell reference is automatically adjusted as the search operation moves on to the next row. See Example A on the next page.

Forward cell reference

You may have occasion to make use of a forward cell reference in a criteria formula. If, for example, your formula references a cell in the third row of the Input block the program evaluates each current record based on the data in the record below it. See the Example B screen and the associated discussion for a complete explanation.

Absolute cell reference

When you want to test each record based on an absolute value you may refer to a cell outside the Input block. For example, you can use an absolute cell reference to set a "flag" to take some action. Suppose you set a flag in a cell outside the Input block, such as cell A2, to switch between 1 and 0. You could then enter a formula test criterion such as this:

`IF(A2,E2 = 83,E2 = 84)`

If the value at A2 is 1, then any record with 83 in column E passes this test. If the value at A2 is 0, then any record with 84 in column E passes this test.

Here's another way an absolute cell reference can come in handy. Suppose you wanted to include as part of a Criterion range a formula that must be recalculated, such as a DATE function. SuperCalc3 would have to recalculate that formula for each record in the range. You could greatly improve the speed of the search by putting the function in a cell outside the Criterion range and referencing that cell in your formula. That way the function only needs to be calculate once.



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Examples:

Example A shows the proper use of cell references in criteria formula.

Suppose you have a pile of checks back from the bank. First you enter the checks in the order you receive them, followed by your deposits. You may use the *Arrange* command to sort the checks first by number, then by date. Since the check number for deposits is blank, the deposits fall at the end of the sort in order by date. To balance your checks you enter the beginning balance and watch SuperCalc3 calculate the totals, net activity, and ending balance.

Check Number	Date	Description	Check Amount	Deposit	Balance
2000	12/10/83	Phone Company	930.00		
2001	12/12/83	Cleaners	140.00		
2002	12/12/83	Department Store	100.00		
2004	12/28/83	Pharmacy	65.00		
2005	1/ 5/84	Water	80.00		
2008	1/ 5/84	Electric Company	250.00		
	12/13/83			250.00	
	1/ 6/84			950.00	
Beginning Balance					\$1,150.00
Totals			1,565.00	1,200.00	
Net Activity					-365.00
Ending Balance					\$785.00

Criteria: Amount 0
v B20 Form= D5>200
I(nput), C(riteria), O(utput), F(ind), E(xtract), S(elect), R(emain)?
8>/Data,

Screen 3-10: Cell Reference, Example A

THE SLASH COMMANDS



Now you want to use the Criterion option to find all checks written for over \$200. The Input range is A4:D14. The Criterion range is B19:B20. The cell B19 contains the Field name you want to search: Amount. The formula for B20 is displayed as the cell contents on the status line. Note that the results of criteria formulas are evaluated as true (1) or false (0) for the first cell after the field name. In this case D5 does not pass the test, so a 0 is displayed. You will not see this value change as the records in the Input range are examined.

With this formula, SuperCalc3 locates the check entry for \$930.00 and the check for \$250.00. The formula refers to D5 even though it is not the first record. Note that if you had entered $D6 > 200$ as the formula, SuperCalc3 would have looked ahead one row and would have highlighted or extracted each check immediately preceding a check greater than \$200. Whenever you have trouble getting the records you are anticipating, check your cell references.

Now suppose you want to change the criteria to look for missing checks. You change the Field Name to "Number" and enter the formula in Example B.

```
19 Criteria: Number
20      0
v B20      Form= AND(A5<>0,A6-A5<>1)
I(nput), C(riterion), O(utput), F(ind), E(xtract), S(elect), R(emain)?
B>///Data,
```

Screen 3-11: Cell Reference, Example B



THE SLASH COMMANDS

This formula can be interpreted as follows. The AND tells you there are two parts to this formula. The first part is: $A5 < > 0$. Separated by a comma, the second part is: $A6 - A5 < > 1$. The entire formula means "if the value in A5 is not zero, then look forward to A6, subtract the value in A5 from it and if the answer is not 1, then A5 passes the test." Whenever the current row passes the test, it will be highlighted during the *Find* operation or copied to the Output block during the *Extract* or *Select* operation.

The first part of the formula allows you to skip the underline. If you did not care whether the underline is highlighted or extracted, or if you deleted the underline you could remove all of the formula except $A6 - A5 < > 1$.

In some cases, the evaluated cell may show as ERROR (for example with the formula $AND(B5 > DATE(12,17,83), B5 < DATE(12,31,83))$ where cell B5 is an underline). This is not a problem, since the second record (cell B6) will not result in an error when it is analyzed if it contains a valid date. But if you wish to avoid such a message you could add a formula similar to the first part of the one in the Check Balancing sample.

Using Data Converted with SDI

You can use *SuperData Interchange* to convert a file built with another list management program to the .CAL file structure. Suppose, for example, you have converted a database with a name and address list in standard mailing label format. You could then extract any name and address using a unique identifying "Key" number, letter, or symbol for each label in the database. For example, to extract the label under the Input block field name "Label", your criterion would be "1" under the Criterion block field name "Key":

KEY	LABEL
1	Mr. Arthur Amble, Purchasing Mgr.
1	Hagen & Duarte Construction
1	2334 Baystone Rd.
1	San Francisco, CA 94117

THE SLASH COMMANDS



Notes:

